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**ADAT SERVICE MANUAL**  
**January 20, 1994**

**Revision 2.02**



## DOCUMENT REVISIONS

|               |          |                                                                                                                                                                                                                                                                                   |
|---------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Revision 1.0  | 2/1/93   | Original Issue                                                                                                                                                                                                                                                                    |
| Update 1      | 4/1/93   | Changed Brake Torque specification, Capstan/Pinch Roller Gap setting and P2/P3 nominal position. Added Section 4.7. Revised Appendix E.<br>Change pages issued.                                                                                                                   |
| Update 2      | 5/1/93   | Updated Table 4.1. Updated Section 4.3, 4.3.1, 4.4, 4.7, 5.1.7, 5.1.9.1, 5.1.10, 5.2.1.3, & 5.3. Updated Appendix B & C. Corrected section 4.6.2 and Appendix E. Added Sections 4.3.1.1, 4.3.1.2, 4.3.1.3, 5.1.15<br>Change pages issued.                                         |
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| Update 4      | 11/01/93 | Revised pages iii, viii, 40, D2 through D10.<br>Added pages D-13 and D-14.<br>Change pages issued with release of Revision 2.0                                                                                                                                                    |
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access the SRAM (U4) to determine the exact time for these locate points. On the other hand, the Set Locate and Locate x combination (where x is 0, 1 or 2) requires the micro controller to store these locate points into the SRAM (U4). The SRAM retains its stored information even if the unit is powered off through the use of a 3V battery (B1) running into the device via pins 14 and 28.

When the record function is executed by the operator, the micro controller will verify that the Record Protect switch is open by checking for a 5V signal at pin 9 of U7. The Record Protect switch is a normally closed switch located in the same housing as the Cassette Present switch. If the switch remains closed, the micro controller will send the message "Prot" to the front panel display.

Finally, when the tape is being rewound or fast forwarded while in mode 1, the micro controller will monitor the elapsed time of the tape through the tach wheel and hall sensor (see section 3.4.4.3). When the tape is approaching its end, either 40:00 or in the "LEAd" section, the micro controller will slow down the winding action of the Reel Motor in order to prevent tape damage when the tape actually reaches its end.

### 3.4.4 Miscellaneous Sensors

In addition to the front panel controls, there are several other sensors located within the ADAT Transport which affect the operation of the unit under certain conditions. These sensors are described in the following paragraphs.

#### 3.4.4.1 Dew Sensor

The Dew Sensor is located on a sheet metal frame mounted to the transport base just below the Capstan Motor, to the right of the Pinch Roller. The dew sensor has two wires connected to it which interface to the Processor PCB via J10, pin 6. If the micro controller sees a voltage at pin 5 of U7, it will interpret this as an indication of too much moisture in the ADAT transport and will shut down the unit. At this time, the drum heater (located within the lower drum) will turn on and the front panel will display the message "-du-". The drum heater will continue to function until the moisture is lowered to normal levels.

#### 3.4.4.2 End Sensors

End sensors are located on each side of the ADAT transport (See fig. 3-1). The end sensor on the left monitors the supply hub while the one on the right monitor the take up hub. Each sensor is essentially a photo transistor. In the middle of the transport is an LED which is always emitting light via 5V from pin 2 of J9 on the Processor PCB. When a tape is inside the ADAT transport, it effectively cuts the light connection between the LED and each sensor.

When the tape is wound to the end of the reel, the clear leader tape at the end of the cassette will allow the LED to make contact with the appropriate end sensor. This completes the end sensor circuit and sends 5 volts to pin 2 (supply hub sensor) or pin 4 (take up hub sensor) of U6. When the micro controller sees a voltage at either of these pins, it will stop the transport by deactivating the reel motor and applying the brakes. If the tape was playing when the end sensor is activated, the micro controller will issue commands to change the transport from mode 3 to mode 2 (similar to pushing the Stop button).

Remote Meter Bridge (RMB). When using the RMB, LED displays appearing on the ADAT front panel will also appear at the RMB. The signal containing the metering information enters the sync module PCB at pin 10 of J1 and runs through a buffer (U1A and U1B) to pin 2 of J2. 5V is sent through pin 1 of J2 to act as a reference voltage for the opto-isolators within the RMB. Three other signals emanate from the RMB to control the ADAT meter display when the RMB is connected. These are labeled as PH (Peak Hold function), PM (Peak Momentary function), and F/S (Fast or Slow option). These signals appear on pins 5, 4 and 3 of J3, respectively. From J3 these signals run to pins 16, 14 and 12 of J1, respectively. Pins 6 through 9 of J3 are grounded to the PCB ground.

J3 and J4 are the Sync Out and Sync In connectors, respectively. J4 is used for receiving timing information when the ADAT is connected as a slave whereas J3 is used for sending timing information when the ADAT is connected as the master. Two pins each are used for the following four signals: Time code, Sample clock, Serial Data in and Serial Data out. Each of these four signals is an optically isolated 5mA current loop so as to prevent ground loops between products. Logic 0 is represented when current is on. These opto-isolator circuits appear at each input signal as follows: U2 for the Serial Data In signal appearing at pins 2 and 6 of J3, U4 for the Sample clock input appearing at pins 3 and 7 of J4, U5 for Time code in appearing at pins 4 and 8 of J4, and U6 for the Serial Data Out signal appearing at pins 5 and 9 of J4. Pin 1 of J3 is grounded while pin 1 of J4 is not connected.

Within the sync module PCB, these four signals pass through a series of logic gates U1C through U1F, U3, U7, U8 and U9. Along with additional input from the Processor PCB, these gates determine the status of the signals as they travel from the sync in connector to both the sync out connector and the Processor PCB (via J1). Signals running to the Processor PCB are as follows: Receive Data (RXD) - pin 9; Master Clock (MAS48K) - pin 13; and External Sync (EXTSYN) - pin 15. Signals emanating from the Processor PCB for use in the logic circuits are the following: SELB - pin 5; SELA - pin 7; Audio 48K Clock (AUD48K) - pin 6; Transmit Data (TXD) - pin 8; and Internal Sync (INTSYN) - pin 11. The SELA and SELB signals contain command and motor control information which are to be sent to slave ADATs.

Five volts to all ICs on this PCB comes from the Processor PCB via pin 3 of J1. Ground connects to the PCB via pin 4 of J1.

### 3.5.6 ADA Module PCB

The ADA Module PCB is located behind the ADAT transport. It is mounted directly to the ADAT transport back panel via four screws. Power to this module is fed directly from the power supply into connector JP1. Moreover, power is distributed to the Input Module PCB and the Output Module PCB via pins 1 through 4 of JP2 and JP3, respectively.

The ADA Module PCB converts all audio signals input to the module into a series of 16 bit digital words and then converts these words back to analog audio on the output stage. Analog input signals are received from the Input Module PCB through pins 9-16 of connector JP2. Likewise, analog signals run out of this module to the Output Module PCB via pins 9-16 of JP3. Pins 5 through 8 of both JP2 and JP3 are grounded.

The ADA module PCB has eight identical circuits; one for each audio input and output. For ease of description, the text will refer to audio channel 1 when describing the function of the module. However, the reader should note that the other seven audio channels are similar. Also note that there are four ADC and four DAC chips for all eight channels. Each ADC and DAC pair contains two separate, identical circuits within its package. No multiplexing of the data is performed at this level.



If the signal exists at this point, then the problem is either in the Read Pre 2 PCB itself or somewhere on the Processor PCB. Low amplitude may also be the result of a faulty OP amp on the Read Pre-2 PCB. Try replacing OP amps U2 and U3 on the Read Pre-2 PCB and then readjust the envelope amplitude. If that doesn't help, consult table 5.2 for other suggested solutions.

If no signal is present on the cable, then either the cable or the heads are bad. In both cases, the head assembly should be replaced. Refer to section 5.1.12 for information on replacing the rotating head assembly.

Another factor which may inhibit proper envelope maximization is related to distortion within the Read Pre-2 PCB. This type of distortion is displayed as spikes throughout the envelope. It may be a result of a high power supply voltage or a faulty part in the amplifier circuit of the Read Pre-2 PCB. If these spikes are present in the envelope when monitored at TP1 of the Read Pre-2 PCB, try lowering the power supply voltage in accordance with the procedures detailed in Appendix E. If the output voltages are set correctly, then verify that the drum motor is positioned properly in the lower drum. Research has shown that sometimes the motor is moved too far to the right or left when installed in the lower drum. This causes some shorting to take place between the motor and the lower drum itself, resulting in distortion through the read preamps. Try loosening the screws which fasten it to the lower drum and move the motor from side to side until you get the best "fit" of the motor in the lower drum. If this does not resolve your problem, then replace the Read Pre-2 PCB.

The final check as outlined in Appendix E is the best way of verifying proper alignment. If the envelope behaves strangely at the start of each PG cycle when you perform this check, it is primarily an indication that tape tension is too high, P1 is not set correctly, the impedance roller is warped or the supply hub is warped. Likewise, if the envelope behaves strangely at the end of each PG cycle when you perform the final check, it is primarily an indication that tape tension is too high, P4 is not set correctly or the take up hub is warped. Recheck all these alignments and retest.

Remember that a full, flat envelope should be displayed on the oscilloscope within 2 second after PLAY has been pressed. If the envelope amplitude is not flat within the specified time, and all of the adjustments described above are correct, verify that the white roller of the P2 and P3 posts is spinning freely. If either one of these posts is not spinning freely, replace the assembly and recheck the alignment.

You may also hear an audible squeal coming from the transport when the final check is performed. This is attributed to a squeaky P2 or P3 post. It should be easy for the service technician to identify the roller which is causing the squeal by isolating the sound to the faulty part. If a post is squeaky, first determine if a simple adjustment resolves the problem. Otherwise, replace the affected assembly and recheck tension and alignment.

#### 4.4 QC Test Procedure

Appendix E contains the test procedure which must be performed on every ADAT serviced in the field. This test allows the service technician to verify that the unit is working to the highest level of quality. The test includes a check of the alignment as well as other functions such as braking, tracking and the like. This test procedure should be conducted only after all repairs on the unit have been completed.

The QC Test Procedure is written in a step by step, comprehensive manner. It should be conducted in the order written. All test equipment hook up and settings are described in the text and a data sheet is provided for record keeping purposes. Please make copies of the data sheet and complete a separate sheet for each ADAT serviced.

## 5.0 REPAIR AND TROUBLESHOOTING

This section consists of three parts. Section 5.1 is a detailed description of the removal, replacement and adjustment of various parts within the ADAT transport. Section 5.2 contains a description of the error messages displayed on the ADAT front panel and an explanation of those messages. Finally, section 5.3 is a troubleshooting guide to help the service technician identify problems and the implement solutions

### 5.1 ADAT Transport Repair

This section explains the steps involved in adjusting or replacing various items within the ADAT transport. Together with the accompanying video, the service technician should be able to service parts within the transport quickly and easily.

Note that references to the top, bottom, left and right sides of the ADAT are all made while looking at the unit from the front panel.

#### 5.1.1 Adjusting the Tension Band

Adjusting the tension band is accomplished by unscrewing the Phillips head screw located to the lower left of the supply hub (point B of fig. 4-1) and moving the band to the right (decrease tension) or to the left (increase tension) of its current position. Moving the tension band easily can be accomplished by placing a Phillips head screwdriver into the hole next to the teeth of the tension band (point A of fig. 4-1) and turning the screwdriver to move the teeth one way or the other (much like a gear works). Following any adjustments, tighten down the Phillips head screw that holds the tension band in place and secure the screw with some Three Bond. It is necessary to re-check tape tension every time the tension band is adjusted.

#### 5.1.2 Adjusting The Capstan/Pinch Roller Gap

To adjust the capstan/pinch roller gap, it is necessary to enter the "CAP" self test as described in section 4.5.2. While in the "CAP" mode, all of the transport controls function normally. However, when threading from mode 1 to mode 2, there is no attempt to play the tape before setting in mode 2.

Adjusting the gap is accomplished by unthreading the Phillips head screw located on the transport base (Point E of fig. 4-1) and moving the metal piece to the left (increase gap) or to the right (decrease gap). You may notice a series of interlocking sheet metal pieces which lead from the screw to the pinch roller assembly. Be aware that when the screw is loosened, these pieces may come out of their nominal positions. Place these pieces in their nominal positions prior to re-checking the capstan gap. When the gap is set to its correct position, apply some Three Bond to the screw to keep it in place.

Whenever the capstan/pinch roller gap is adjusted, it is necessary to re-check tape tension.

#### 5.1.3 Adjusting The Load Switch

To adjust the load switch, it is necessary to enter the "LOAD" self test as described in section 4.5.2. While in the "LOAD" mode, tape loading is disabled.

The load switch is located on the left side of the transport. The switch is mechanically controlled by a plastic black piece (Point C of fig. 4-1) which moves one contact of the switch into position upon



## Power Supply Upgrades

Since the original release of the ADAT in 1992, several modifications to the power supply circuitry have been made in order to make the power supply a more robust and reliable component. After several months of research, the final design of the power supply was solidified. When servicing ADATs in the field, it is important to verify that all of these modifications are installed prior to return of the ADAT to the customer.

Follow the steps below to check for the current mods to the power supply. They are listed in reverse order. If the first item on the list is installed, the chances that all of the other mods are installed is high. If any of the ADATs power supplies do not have all of the modifications listed, it must be replaced. The un-modified power supply should be sent back to Alesis for upgrade.

1. Verify that R107 is 24 ohms. Resistor values lower than 24 ohms may cause the power supply to intermittently reset the ADAT.
2. Verify that R122 is 4.7K ohms
3. Verify that the bridge rectifier, D101, is the following part: KBP205. This component is enclosed in a flat black case. The old version of this part, KBP206, is recognizable through its shiny black casing.
4. Verify that capacitor C113 is of a ceramic material. This is usually a yellow component. Older versions of this part were constructed from polystyrene and are not as robust as their ceramic counterparts. The polystyrene versions of this part would sometimes blow up under normal operation. The older capacitor is usually blue in color.
5. Verify that all diodes, D107, D108, D109, D110, D111 and D201, are the following part: MR822. This is normally a Motorola part. Other manufacturer's parts have been used but the bottom line is that they all have the number "822" on the part. Anything else requires replacement of the power supply.
6. For Power Supply PCBs earlier than Revision C, identifiable by their lack of a revision stamp, verify that there is no capacitor in location C102. This is usually next to C101. Note that Revision C power supplies have re-designated C102 as the component to the right of the power supply switch. **DO NOT REMOVE THIS PART!!!!**

The following Parts within the Power Supply are acceptable substitutes.

1. Opto-Isolator TLP731 is an acceptable substitute for Opto-Isolator 4N25.
2. Switching Transistor K792 is an acceptable substitute for Switching Transistor K118.
3. Thyristor BT151-500R is an acceptable substitute for Thyristor TYS606-6.
4. Rectifier KBP06AC and PBP205 are acceptable substitutes for Rectifier KBP205

## Installing The Cap Mod

**NOTE: THIS MODIFICATION IS ONLY APPLICABLE TO REVISION D PROCESSOR PCBs**

The original design of the capstan servo circuitry included a 12 volt feed to U39 on the Processor PCB. However, it was noticed that when the ADAT was pitched up to maximum (+100), there would not be enough voltage in the capstan servo circuit to accomplish the task and thus the ADAT would not sync properly.

The "Cap" mod is installed to supply 15 volts to U39 to enable syncing at faster speeds within the ADAT. The mod consists of a cut and a jumper to the Rev D Processor PCB. All ADATs serviced must have this mod completed prior to delivery back to the customer. Follow the steps below to install this modification.

Note that this modification is applicable only to those Processor PCB's that are Revision D or below.

1. Verify that power is OFF
2. Cut the trace going to U39 pin 4 on the Processor PCB. Be careful not to cut any of the other traces which are nearby. It is suggested that the cut be made above R125 and below R125 so that a piece of the trace can be removed. This will guarantee that 12 volts is no longer supplied to U39.
3. Install a 24 or 26 AWG jumper from the center pin (collector) of Q15 to U39 pin 4. This jumper will supply 15 volts to U39.
4. Using an Ohm meter, verify that an open exists between the +12 volt leg of the power supply connector J1 and U39, pin 4.
5. Using an Ohm meter, verify that a short exists between the +15 volt leg of the power supply connector J1 and U39, pin 4.



## Installing the VCO Mod

**NOTE: THIS MODIFICATION IS ONLY APPLICABLE TO REVISION D PROCESSOR PCBs**

In order to increase stability in the VCO circuitry, and to resolve problems associated with the Digital I/O interface, a modification to the VCO section of the Processor PCB is required.

To check if the mod is installed in the ADAT under repair, measure or visually inspect R153 on the Rev D Processor PCB. If its value is 3.3K ohms, then the mod is required. If R153 measures 2.7K ohms, then the mod has been previously installed. Follow the steps below to modify the VCO portion of the Processor PCB.

1. Verify that power is OFF
2. Remove capacitors C133, C134, C135 and C136 from the Processor PCB.
3. Remove resistor R153 from the Processor PCB.
4. Remove inductor L1 from the Processor PCB.
5. Install new capacitors to the locations occupied by C133, C134, C135 and C136. The value of the new capacitor is 15pF.
6. Install a 0.82 $\mu$ H inductor in the location occupied by L1.
7. Install a 2.7K ohm resistor in the location occupied by R153.
8. Conduct the QC Test Procedure to verify the correct installation of all components.

## Processor PCB Mods Due To New Lower Drum

**NOTE: THIS MODIFICATION IS ONLY APPLICABLE TO REVISION D PROCESSOR PCBs**

There are two types of lower drum currently installed in the ADAT. If you look at the underside of the ADAT, the type of lower drum can be determined. The "Old" lower drum contains a brass cover whereas the "New" lower drum has a gray colored metal cover.

If an ADAT headstack assembly is replaced, it is suggested that you install a like lower drum into the unit. If a headstack with an "Old" lower drum is removed, a replacement headstack with an "Old" lower drum is preferred. However, if this is not possible, install the "New" lower drum and perform the modifications listed below.

1. If a "New" lower drum is installed, the drum cable must be replaced. The appropriate drum cable for the "New" lower drum contains a PCB covered in heat shrink. The purpose of this PCB is to convert the signal off of the "New" lower drum to one which is recognizable by the Processor PCB.

NOTE: two types of PCB exist. The "X4" version is a small rectangular PCB (1/2 inch wide) while the "X6" variety is a much larger PCB (1 inch wide). It is always best to install a cable with the "X6" PCB.

2. On the Processor PCB, remove R60 and replace it with a short (a piece of buss wire).
3. On the Processor PCB, change the value of R215 from 470K ohms to 150K ohms by adding a 220K ohm resistor in parallel with R215 or replacing R215 with a 150K ohm resistor.
4. On the Processor PCB, change the value of R104 from 100 ohms to 80 ohms by adding a 390 ohm resistor in parallel with R104 or replacing R104 with an 80 ohm resistor.

If a headstack containing a "New" lower drum is replaced with a headstack containing an "Old" lower drum, only the drum cable requires replacement. The modified Processor PCB will work with the "Old" lower drum. In this case, the drum cable with the PCB would be replaced with a drum cable containing no PCB assembly.

Note that the replacement of a headstack containing a "New" lower drum in a transport which originally contained an "Old" lower drum may present mounting problems. This is due to a sensor located on the "New" drum motor preventing the headstack from mounting correctly to the transport base. To remedy this situation, simply remove the drum motor from the headstack (see section 5.1.12.1), install the new headstack and then re-install the new drum motor.



## Capstan Motor Replacement

Since the initial release of the ADAT, several problems relating to tape travel have been uncovered. One of these problems related to the fact that when PLAY was executed by the operator, the real time counter would not increment. Further analysis revealed that the capstan motor in these units was not spinning. However, once the motor was tapped with a screwdriver or turned by hand, it would begin operating properly.

It was found that this component had "dead" spots inside the motor which would prevent the rotor from spinning. This was caused primarily by dust buildup in the motor, which would inhibit the movement of the brushes within the motor.

A new capstan motor has been manufactured to replace the existing motor. All ADATs which arrive for servicing or upgrade will need to have the "old" capstan motor replaced with the "new" version. The following steps detail the replacement procedure.

1. After removing the top panel, look at the capstan motor. Verify which type of motor is currently installed in the unit. "Old" capstan motors are easily recognizable by the fact that a capacitor is wired onto the top of the motor assembly. "New" capstan motors have a plastic top cover and no capacitor installed.
2. If the "old" capstan motor is currently installed, it must be replaced by the "new" part. De-solder the four wires which connect to this motor. Pay attention to which wire is NOT connected to the capacitor. This is the positive pole. Also pay attention to the way in which the tach wires are connected.
3. Remove the capstan motor assembly by removing the belt which connects the motor to the capstan flywheel (located under the transport base), then remove the three Phillips head screws which mount the motor to the transport base. You will also notice a black wire cable tie between one of the screws and the motor's base. This screw (with the cable tie) can be loosened to remove the motor and left in place so that none of the wires running through the cable tie are disturbed.
4. Lift the capstan motor assembly out of the transport.
5. Install the new capstan motor so that the three screw terminals are in line with the holes in the transport base. Fasten the motor to the transport base with the three Phillips head screws. Remember to re-install the black cable tie if it was removed in step 3.
6. Wire the motor as follows: negative pole to the terminal on the top of the motor assembly closest to the plastic "post". Positive pole to the other terminal on the top of the motor assembly. The two wires which connected the "old" motor's tach should be connected to the two pads on the "new" motor's base in the same orientation in which they were removed.
7. Re-install the capstan motor belt to the capstan flywheel. Because the diameter of the "new" motor's pulley is smaller than that of the "old" motor, a new capstan belt, Alesis part number 7-14-0042, may need to be installed to ensure a "snug" fit between the capstan motor pulley and the capstan flywheel.

## Power Supply Toroid Replacement

**NOTE:** This modification is not required for every ADAT serviced. However, if the customer complains of excessive noise through the ADAT outputs, this modification will aid in quieting the unit.

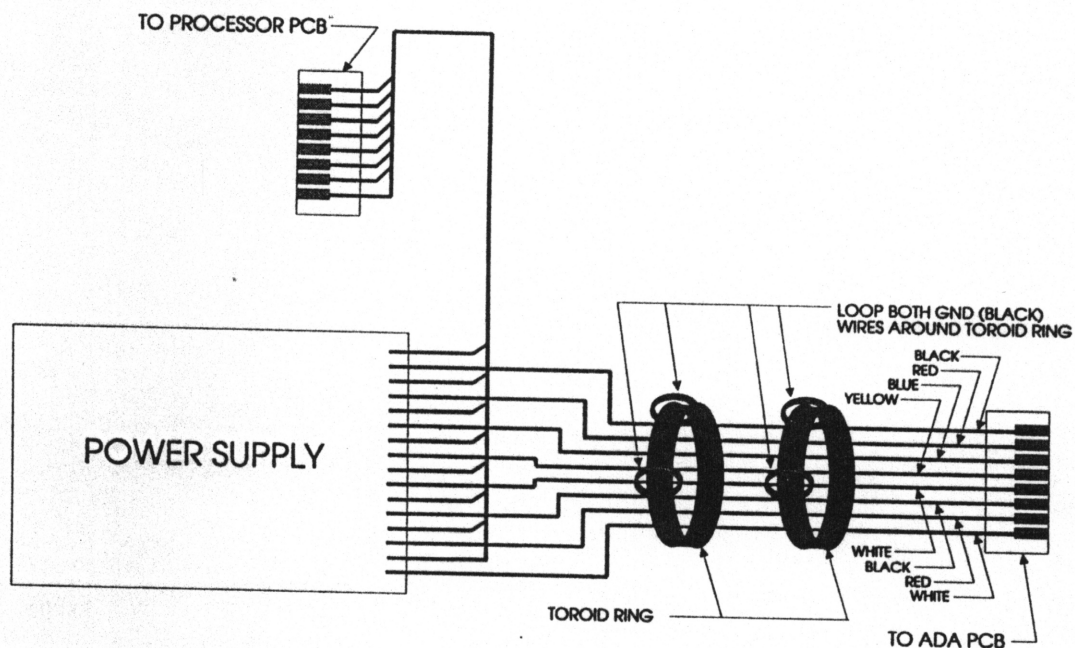
In order to reduce the amount of electrical noise being induced into the analog outputs from the power supply, the installation of two toroid rings should be implemented for all ADATs being serviced. It has been found that the installation of these toroids reduces the overall noise emanating from the analog outputs by as much as 3 dB.

The two toroid rings are installed between the DC voltage wires from the power supply and the connector which mounts to the ADA PCB. This connector supplies voltage to all of the input and output modules within the ADAT.

When installing the toroid rings, it is necessary to remove each pin from the Molex connector which mounts to the ADA PCB. This can be accomplished with a small flathead screwdriver. **IMPORTANT: Because some of the wires are of the same color, be sure to mark the wires to avoid confusion upon re-insertion of these wires into the connector.** It may also be necessary to cut the cable ties which bundle these wires together.

Once all the wires are removed from the Molex connector, insert all of the wires through the first toroid ring. In addition, wrap the two black ground wires around the toroid ring once. Install the second toroid ring in the same manner but place it a few inches away from the first ring. Finally, re-insert all of the wires into the Molex connector in the same orientation in which they were removed. Be sure to re-install cable ties to bundle the wires together. Finally, re-connect the Molex connector to the ADA PCB and fasten the wires to the ADAT center support using cable ties..

When the toroid rings are installed correctly, the power supply wires will look similar to the figure below.





## Sync PCB Insulator Installation

In order to prevent feedback problems within the sync circuit itself, as well as preventing ground loop problems between the sync interface of the ADAT and external sources, a plastic insulator is installed on the 9 pin D shell connector corresponding to the ADAT sync input port. Failure to install this part may result in syncing problems between the ADATs within a multiple ADAT system or between the BRC and an external syncing source (such as a video deck or analog tape recorder).

For every unit returned for service, a check for the installation of this insulator must be completed. In addition to the insulator, verify that black plastic washers have also been installed. Both the plastic washers and the insulator are installed on the 9 pin connector between the connector shell and the ADAT chassis.

If these parts are installed correctly, they are visibly noticeable. Simply look at the sync input connector and verify that a black "cover" is placed between the connector and the back panel cut out for this connector. The other two 9 pin connectors will show metal in the back panel cut out for these connectors. Also verify that black plastic washers are installed between the ADAT back panel and the jack screws for the sync input connector.

**Version 3.06**

Date of Release: 01/04/94

Checksum (int=83A3H; ext=82CBH)

**A. Fixes:**

1. When threading tape (mode1 -> mode2), add 500ms mask time before checking switches. This addresses noisy switches that could result in a false Er2 condition.



| GROUP | PART No.  | DESCRIPTION                        | QTY | PCB    | POSITION                                                            | NOTES                            |
|-------|-----------|------------------------------------|-----|--------|---------------------------------------------------------------------|----------------------------------|
| ASY   | 9-79-0004 | ASSY, AD FRONT PANEL LEFT PCB      | 1   |        |                                                                     |                                  |
| ASY   | 9-79-0005 | ASSY, AD PCB MULTIPIN CON          | 1   |        |                                                                     |                                  |
| ASY   | 9-79-0006 | ASSY, AD FRONT PANEL RIGHT PCB     | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-79-0007 | ASSY, AD PCB DIG I/O               | 1   |        |                                                                     |                                  |
| ASY   | 9-79-0008 | ASSY, AD PCB ADA (REV E)           | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-79-0010 | ASSY, AD PCB IP                    | 1   |        |                                                                     |                                  |
| ASY   | 9-79-0011 | ASSY, AD PCB O/P                   | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-79-0015 | ASSY, AD PCB SYNC                  | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-79-0034 | ASSY, AD PCB MAIN PR (REV G)       | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-79-0057 | ASSY, AD PCB RP2 (REV G)           | 1   |        |                                                                     |                                  |
| ASY   | 9-80-0002 | ASSY, REMOTE LRC AD                | 1   |        |                                                                     |                                  |
| ASY   | 9-88-0002 | ASSY, AD FRONT PANEL               | 1   |        |                                                                     |                                  |
| ASY   | 9-88-1017 | ASSY, HOLDER LED BAR               | 1   |        |                                                                     |                                  |
| ASY   | 9-88-1159 | ASSY, AD PG COMPLETE (REV X6)      | 8   | FPL    |                                                                     |                                  |
| ASY   | 9-88-1174 | ASSY, AD EMI FILTER                | 1   | PG(X6) | BETWEEN DRUM & PR PCB                                               |                                  |
| ASY   | 9-88-1179 | ASSY, PANEL COVER TOP AD           | 1   |        | REAR PANEL                                                          |                                  |
| ASY   | 9-88-1180 | ASSY, PANEL COVER BOTTOM AD        | 1   |        |                                                                     |                                  |
| ASY   | 9-88-1181 | ASSY, POWER SUPPLY AD              | 1   |        |                                                                     |                                  |
| CAB   | 4-18-1403 | CABLE 16-PIN 6.0 I DIL             | 1   | P/S    |                                                                     |                                  |
| CAB   | 4-18-1403 | CABLE 16-PIN 6.0 I DIL             | 1   |        | SYN - PR                                                            |                                  |
| CAB   | 4-18-1406 | CABLE 16-PIN 2.5 0.1 DIL           | 1   |        | ADA(JP3)-PR(J13)                                                    |                                  |
| CAB   | 4-18-1406 | CABLE 16-PIN 2.5 0.1 DIL           | 1   |        | ADA(JP5)-PR(J12)                                                    |                                  |
| CAB   | 4-18-1407 | CABLE 16-PIN 2.5 0.1 DIL (REVERSE) | 3   |        | ADA J2 - IP JP2, ADA J1 - O/P JP2, O/P JP1 - MULTIPIN               |                                  |
| CAB   | 4-18-1408 | CABLE 50-PIN 2.0 I CON 0.1 DIL     | 1   |        | IP JP1 - MULTIPIN                                                   |                                  |
| CAB   | 4-18-1409 | CABLE 14-PIN 10.0 I DIL            | 1   | FPL    | J1 (HARDSOLDER) - PR                                                |                                  |
| CAB   | 4-18-1616 | CABLE 16 PIN DIL 3.0, 0.1 CTR      | 1   | FPR    | J2 (HARDSOLDER) - FPL                                               |                                  |
| CAB   | 4-18-1005 | CABLE 7-PIN SIL 270mm 0.1 SPC M-F  | 1   | FPR    | J1 (HARDSOLDER) - FPL                                               |                                  |
| CAB   | 4-18-1006 | CABLE 6-PIN SIL 75mm 0.1 SPC M-F   | 1   | PG     |                                                                     |                                  |
| CAB   | 4-18-1300 | CABLE 5-PIN 370MM SIL 2MM          | 1   | PG     |                                                                     |                                  |
| CAB   | 4-18-1301 | CABLE 6-PIN 150MM SIL 2MM          | 1   |        | LINEAR TRACK                                                        |                                  |
| CAB   | 4-18-1302 | CABLE 6-PIN 225MM SIL 2MM          | 1   |        | DIG I/O                                                             |                                  |
| CAB   | 4-18-1303 | CABLE 6-PIN 100MM SIL 2MM          | 1   |        | RT WRITE                                                            |                                  |
| CAB   | 4-18-1305 | CABLE 8-PIN 600MM SIL 2MM          | 1   |        | RP2(J) - PR(J3 READ)                                                |                                  |
| CAB   | 4-18-1307 | CABLE 14-PIN 520MM SIL 2MM         | 1   |        | CASS.EJECT MOTOR                                                    |                                  |
| CAB   | 4-18-1308 | CABLE 14-PIN 700MM SIL 2MM         | 1   |        | TAPE THREAD MOTOR                                                   |                                  |
| CAB   | 4-19-1309 | CABLE 5-PIN 110MM SIL 8MM          | 1   |        | CAP/REEL MOTOR                                                      |                                  |
| CAB   | 4-19-1311 | CABLE ASSY. LR                     | 1   |        | P/S-IEC320 (8mm-HRDSLDR)                                            |                                  |
| CAB   | 4-19-1800 | JUMPER WIRE 24 AWG 3"              | 1   |        |                                                                     |                                  |
| CAB   | 4-73-0001 | CABLE FIBER OPTIC                  | 1   | PR     | CAP MOD ON PROCESSOR PCB REV D AND BELOW                            | SEE APPENDIX B OF SERVICE MANUAL |
| CAB   | 7-41-0001 | CABLE POWER UL/CSA (SVT)           | 1   |        | MOLDED FOAM UPPER                                                   | SHARP                            |
| CAP   | 1-02-1033 | CAP 103 MF CERDISC 1KV             | 1   |        |                                                                     |                                  |
| CAP   | 1-09-0480 | CAP 4700 MF 10V                    | 1   | P/S    | C107                                                                |                                  |
| CAP   | 1-07-1000 | CAP 1000 uF ELEC 10V               | 1   | FPL    | C100                                                                |                                  |
| CAP   | 1-07-2200 | CAP 2200 uF ELEC 10V               | 2   | P/S    | C127,128                                                            |                                  |
| CAP   | 1-08-1001 | CAP 1000 uF ELEC 16V               | 4   | P/S    | C125,126,201,202                                                    |                                  |
| CAP   | 1-09-0100 | CAP 10 MF ELEC 25V                 | 4   | P/S    | C123,124,129,130                                                    |                                  |
| CAP   | 1-09-0100 | CAP 10 MF ELEC 25V                 | 2   | O/P    | C9,13                                                               |                                  |
| CAP   | 1-09-0101 | CAP 100 MF ELEC 25V                | 1   | SYN    | C14                                                                 |                                  |
| CAP   | 1-09-0105 | CAP 1.0 MF ELEC 25V                | 4   | ADA    | C14,15,19,20                                                        |                                  |
| CAP   | 1-09-0475 | CAP 4.7 MF ELEC 25V                | 21  | ADA    | C36,47,48,49,50,51,52,53,54,55,56,57,58,67,71,73,74,109,112,115,119 |                                  |
| CAP   | 1-09-0476 | CAP 47 MF ELEC 25V                 | 8   | ADA    | C123,124,129,130,131,134,137,138                                    | SPRAGUE                          |
| CAP   | 1-09-0476 | CAP 47 MF ELEC 25V                 | 8   | ADA    | C125,126,127,128,131,132,135,136                                    | SPRAGUE                          |
| CAP   | 1-09-0477 | CAP 470 MF ELEC 25V 10x15mm        | 2   | PG     | C8,C9                                                               |                                  |
| CAP   | 1-09-1000 | CAP 1000 MF ELEC 25V               | 1   | PG     |                                                                     |                                  |
| CAP   | 1-10-0100 | CAP 10 MF ELEC 35V                 | 2   | P/S    | C121,122                                                            |                                  |
| CAP   | 1-10-0100 | CAP 10 MF ELEC 35V                 | 8   | ADA    | C5,23,30,70,72,98,105,107                                           |                                  |
| CAP   | 1-11-1003 | CAP 100 uF ELEC 50V                | 10  | IP     | C1-8,15,16                                                          | SPRAGUE                          |
| CAP   | 1-13-1503 | CAP 150 uF ELEC 400V               | 1   | P/S    | C109                                                                |                                  |
| CAP   | 1-20-4723 | CAP 472 PF MONO 50V                | 1   | P/S    | C105                                                                |                                  |
| CAP   | 1-21-1023 | CAP 120 PF MONO 50V                | 1   | P/S    | C101                                                                |                                  |
| CAP   |           |                                    | 1   | P/S    | C112                                                                |                                  |

Revision 2.02

D-2

1/20/94

| GROUP | PART No.  | DESCRIPTION                         | QTY | PCB   | POSITION                                                                        | NOTES                            |
|-------|-----------|-------------------------------------|-----|-------|---------------------------------------------------------------------------------|----------------------------------|
| CAP   | 1-21-1033 | CAP 103 PF MONO 50V                 | 1   | P/S   | C115                                                                            |                                  |
| CAP   | 1-21-1043 | CAP 104 PF MONO 50V                 | 3   | P/S   | C110,116,117                                                                    |                                  |
| CAP   | 1-21-1523 | CAP 152 PF MONO 50V                 | 1   | P/S   | C114                                                                            |                                  |
| CAP   | 1-21-3323 | CAP 332 PF MONO 50V                 | 1   | P/S   | C111                                                                            |                                  |
| CAP   | 1-21-4714 | CAP 471 PF MONO 50V                 | 1   | P/S   | C113                                                                            |                                  |
| CER   | 1-02-0101 | CAP 100 PF CERDISC 10%              | 8   | SYN   | C12,3,4,7,11,12,13                                                              |                                  |
| CER   | 1-02-0102 | CAP 1000 PF CERDISC 10%             | 1   | ADA   | C122                                                                            |                                  |
| CER   | 1-02-0102 | CAP 1000 PF CERDISC 10%             | 8   | IP    | C17-24                                                                          |                                  |
| CER   | 1-02-0102 | CAP 1000 PF CERDISC 10%             | 8   | O/P   | C1-8                                                                            |                                  |
| CER   | 1-02-0103 | CAP 0.01 MF CERDISC 10%             | 9   | ADA   | C10,11,12,13,94,97,103,104,121                                                  |                                  |
| CER   | 1-02-0104 | CAP 0.1 MF CERDISC 10%              | 1   | DIG   | C1                                                                              |                                  |
| CER   | 1-02-0104 | CAP 0.1 MF CERDISC 10%              | 44  | ADA   | C1-4,6-9,16-18,21,26-29,31-35,37-46,68,69,91,92,93,95,96,99,100,101,102,106,108 |                                  |
| CER   | 1-02-0104 | CAP 0.1 MF CERDISC 10%              | 6   | IP    | C8-14                                                                           |                                  |
| CER   | 1-02-0104 | CAP 0.1 MF CERDISC 10%              | 6   | O/P   | C10-12,14-16                                                                    |                                  |
| CER   | 1-02-0221 | CAP 0.1 MF CERDISC 10%              | 10  | SYN   | C5,6,8,9,10,15,16,17,18,19                                                      |                                  |
| CER   | 1-02-0221 | CAP 220 PF CERDISC 10%              | 3   | TNSP  | MODE SWITCH                                                                     |                                  |
| CER   | 1-02-0390 | CAP 39 PF CERDISC 10%               | 8   | ADA   | C59,60,61,62,63,64,65,66                                                        |                                  |
| CER   | 1-02-4713 | CAP 471 PF CERDISC 1Kv              | 2   | RP2   | PART OF FILTER MOD TO RP2 REV D                                                 |                                  |
| CON   | 4-09-0002 | CON IEC320 WEMI FILTER              | 1   | P/S   | C108                                                                            | SEE APPENDIX B OF SERVICE MANUAL |
| CON   | 4-10-0002 | CON DB9 9-PIN FOXCONN (METAL)       | 1   |       | REAR PANEL                                                                      |                                  |
| CON   | 4-15-0016 | CON 8-PIN MALE SIL 4mm CTR          | 3   | SYN   | J2,3,4 (METER BRIDGE, O/P SYNC, IP SYNC)                                        |                                  |
| CON   | 4-15-0016 | CON 8-PIN MALE SIL 4mm CTR          | 1   | ADA   | JP1                                                                             |                                  |
| CON   | 4-15-0017 | CON 8-PIN FEM SIL 4mm CTR           | 1   | PR    | J1                                                                              |                                  |
| CON   | 4-98-0002 | MINI SHUNT 0.1 SPC AD               | 2   | P/S   | P1,2                                                                            |                                  |
| FIL   | 1-20-0101 | CAP 1 uF FILM 250V                  | 2   | PR    | J15,16                                                                          |                                  |
| FIL   | 1-20-0332 | CAP 3300 PF FILM 5%                 | 2   | P/S   | C104,118                                                                        |                                  |
| FIL   | 1-23-0103 | CAP 0.01 MF FILM 5% POLYCARB        | 16  | ADA   | C75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90                                | WIMA (POLYCARB)                  |
| FIL   | 1-23-0104 | CAP 0.1 MF FILM 5% POLYCARB         | 3   | PR    | C80,93,96                                                                       | WIMA only (POLYCARBO)            |
| HDR   | 4-14-0014 | HEADER 14-PIN 0.1 DIL               | 5   | PR    | C82,82,87,98,101                                                                | WIMA only (POLYCARBY)            |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 1   | FPL   | J2                                                                              |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 1   | FPL   | J3                                                                              |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 2   | MP    | J1,2                                                                            |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 4   | ADA   | JP2,3,4,5                                                                       |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 2   | IP    | JP1,JP2                                                                         |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 2   | O/P   | JP1,JP2                                                                         |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 1   | SYN   | J1                                                                              |                                  |
| HDR   | 4-14-0016 | HEADER 16-PIN 0.1 DIL XRM           | 3   | PR    | J12,13,14                                                                       |                                  |
| HDR   | 4-14-0050 | HEADER 50-PIN 0.1 DIL               | 1   | PR    | J2                                                                              |                                  |
| HDR   | 4-15-0002 | HEADER 2-PIN 0.1 SIL                | 2   | PR    | J15,16                                                                          |                                  |
| HDR   | 4-15-1005 | HEADER 5-PIN SIL 2MM CTR            | 1   | DIG   | J1                                                                              |                                  |
| HDR   | 4-15-1005 | HEADER 5-PIN SIL 2MM CTR            | 2   | PR    | J5,6                                                                            |                                  |
| HDR   | 4-15-1008 | HEADER 8-PIN SIL 2MM CTR (SHROUDED) | 2   | PR    | J3,4                                                                            |                                  |
| HDR   | 4-15-1008 | HEADER 8-PIN SIL 2MM CTR (SHROUDED) | 1   | RP2   | J2                                                                              |                                  |
| HDR   | 4-15-1007 | HEADER 7-PIN SIL 2MM                | 1   | PR    | J7                                                                              |                                  |
| HDR   | 4-15-1008 | HEADER 8-PIN SIL 2MM CTR (SHROUDED) | 1   | PR    | J9                                                                              |                                  |
| HDR   | 4-15-1014 | HEADER 14-PIN SIL 2mm CTR           | 1   | RP2   | J1                                                                              |                                  |
| HDR   | 4-15-1103 | HEADER 3-PIN SIL (ADPS)             | 2   | PR    | J10,11                                                                          |                                  |
| HDW   | 5-00-0003 | SCREW 6-32 x 1/4 PP BLK UNC         | 1   | P/S   | P101                                                                            |                                  |
| HDW   | 5-00-0004 | SCREW 6-32 x 1/4 PP BLK             | 40  |       | COVER (25/MULTIPIN (4)PWR CONN (2)REAR (8)                                      |                                  |
| HDW   | 5-00-0016 | SCREW 6-32 x 1/4 PP ZNC             | 6   | PR    | SIDE PANEL                                                                      |                                  |
| HDW   | 5-00-0016 | SCREW 6-32 x 1/4 PP ZNC             | 5   |       | PR PCB (02,3,14,15RP2 MOUNT)                                                    |                                  |
| HDW   | 5-00-0016 | SCREW 6-32 x 1/4 PP ZNC             | 4   |       | MULTIPIN CONN ASSY                                                              |                                  |
| HDW   | 5-00-0025 | SCREW 6-32 x 5/16 PFB HEX           | 22  |       | INTERNAL CHASSIS (6)PCB MNT (13)RP2 MOUNT (2)                                   |                                  |
| HDW   | 5-00-0027 | SCREW M-3 x 5mm PPZ                 | 6   | ROTOR | FRONT PANEL - CHASSIS                                                           |                                  |
| HDW   | 5-00-0029 | SCREW 4-40 x 5/8 SOC HEX            | 2   | MP    | ATTACHES ROTOR PCB TO ROTOR                                                     |                                  |
| HDW   | 5-00-0030 | SCREW 6-32 x 3/8 PPB 1WAY           | 4   |       | MULTIPIN CON ASSY                                                               |                                  |
| HDW   | 5-00-0031 | SCREW M-3 x 6mm PPZ THDFORM         | 3   |       | IEC CONN (2), GND (1)                                                           |                                  |
| HDW   | 5-00-1002 | SCREW 4-24 x 5/16 PFB PLAST         | 6   |       | TRANSPRT FRNT/RR DECK SUPPRT                                                    |                                  |
| HDW   | 5-00-1002 | SCREW 4-24 x 5/16 PFB PLAST         | 2   | CASE  | CASE                                                                            |                                  |
| HDW   | 5-00-1002 | SCREW 4-24 x 5/16 PFB PLAST         | 15  |       | FRONT PANEL ASSY                                                                |                                  |



| GROUP | PART No.  | DESCRIPTION                         | QTY | PCB | DIG IO | POSITION                          | NOTES                            |
|-------|-----------|-------------------------------------|-----|-----|--------|-----------------------------------|----------------------------------|
| HDW   | 5-00-1002 | SCREW 4-24 x 5/16 PPB PLAST         | 1   |     |        |                                   |                                  |
| HDW   | 5-00-1010 | SCREW M-3 x 12mm PPZ SPLITLOCK      | 2   |     |        |                                   |                                  |
| HDW   | 5-02-0007 | SCREW 4 x 40 JACK                   | 6   |     |        | 9-PIN D SUB CONN - REAR PANEL     |                                  |
| HDW   | 5-02-4400 | NUT KEP 4-40                        | 4   |     |        | MULTIPIN CON ASSY                 |                                  |
| HDW   | 5-02-6320 | NUT KEP 6-32                        | 3   |     |        | PWR CONN (2), GND (1)             | FOXCONN (080-0003-023) MOLEX/AMP |
| HDW   | 5-03-0003 | STANDOFF 6-32 x 1/2 F-F             | 4   |     |        | PR Q2,3,14,15                     |                                  |
| HDW   | 5-03-0003 | STANDOFF 6-32 x 1/2 F-F             | 4   |     |        | MULTIPIN CONN ASSY                |                                  |
| HDW   | 5-03-0006 | STANDOFF 6-32 x 3/4 F-F             | 4   |     |        | RP2 MOUNT (1)                     |                                  |
| HDW   | 5-03-0007 | STANDOFF 6-32 x 3/4 M-F             | 1   |     |        | RP2 MOUNT                         |                                  |
| HDW   | 5-04-0002 | WASHER SHOULDER #4                  | 1   |     |        | DB9 CONN (SYNC IN)                |                                  |
| HDW   | 5-04-0003 | SPACER #4x1/4x1/4                   | 2   |     |        | MULTIPIN CON ASSY                 |                                  |
| HDW   | 5-04-0005 | INSULATOR, CAP                      | 4   |     |        | F.P. ASSY (4700 MF CAP-FPL PCB)   |                                  |
| HDW   | 5-04-0007 | WASHER #4 SPLITLOCK                 | 1   |     |        | DB9 CONN (SYNC OUT/METER BRIDGE)  |                                  |
| HDW   | 5-04-0010 | WASHER NYLON 0.030 #4               | 4   |     |        | MULTIPIN CON ASSY                 |                                  |
| HDW   | 5-05-1001 | CLIP FUSE                           | 4   |     |        | F101                              |                                  |
| IC    | 2-14-0541 | IC 74HCS41 OCTAL BUFFER TE          | 1   |     |        | ADA U20                           |                                  |
| IC    | 2-14-7400 | IC 74HC00 QUAD 2-IN NAND T          | 4   |     |        | SYN U3,7,8,9                      |                                  |
| IC    | 2-14-7404 | IC 74HC04 HEX INVERTER TEX          | 1   |     |        | SYN U1                            | TI                               |
| IC    | 2-21-0084 | IC TL084 QUAD OPAMP TI              | 8   |     |        | ADA U12,13,14,15,16,17,18,19      | NAT/71                           |
| IC    | 2-21-0084 | IC TL084 QUAD OPAMP TI              | 4   |     |        | UP U1,2,3,4                       | TI                               |
| IC    | 2-21-8293 | IC LM18293 4CH PIP DRVY NA          | 4   |     |        | OP U1,2,3,4                       | TI                               |
| IC    | 2-23-4053 | IC CD4053 ANALOG SWITCH SI          | 2   |     |        | PR U18,23                         | TI                               |
| IC    | 2-24-2801 | IC HCPL2601 OPTOCOUPLER             | 3   |     |        | ADA U8,10,11                      | NAT (LM18293N)                   |
| IC    | 2-25-1700 | IC PCM1700P DAC BURR-BROWN          | 4   |     |        | SYN U2,4,5,6                      | SIG/TOS                          |
| IC    | 2-25-5336 | IC CS5336 ADC CRYSTAL SEMI          | 4   |     |        | ADA U5,6,7,8                      | SEI (IL101B/T18850)              |
| IC    | 2-31-0001 | IC SOFTWARE EPROM AD                | 4   |     |        | ADA U1,2,3,4                      | BURR-BROWN (PCM-1700P)           |
| JAC   | 4-02-0001 | JACK 1/4 MONO CLIFF                 | 1   |     |        | PR U5 (V3.05)                     | CRYSTAL (CS5336)                 |
| JAC   | 4-02-0001 | JACK 1/4 MONO CLIFF                 | 8   |     |        | UP J1-J8 (includes 5-02-6321 nat) | TINAT/SIG (27C512)               |
| JAC   | 4-02-0001 | JACK 1/4 MONO CLIFF                 | 2   |     |        | SYN J5,6 (REAR PANEL)             | CLIFF                            |
| LED   | 3-02-0012 | LED GRN T1 HP HLMP1540              | 8   |     |        | OP J1-J8 (REAR PANEL)             | CLIFF                            |
| LED   | 3-02-0013 | LED YEL T1 HP HLMP 1440             | 12  |     |        | FPR D1,3-12,14,17-48              | CLIFF                            |
| LED   | 3-02-0014 | LED RED T1 HP HLMP 1340             | 2   |     |        | FPR D13,16                        |                                  |
| LED   | 3-04-0002 | DISP 7-SEG GRN/BLK LITE-ON          | 2   |     |        | FPR D2,15                         |                                  |
| LIT   | 7-51-1026 | MANUAL REFERENCE AD                 | 5   |     |        | FPR DS1-5                         |                                  |
| LIT   | 7-51-1029 | SHEET UNPACKING INSTR. AD           | 1   |     |        |                                   |                                  |
| LIT   | 7-90-0912 | BAG POLY 9x12                       | 1   |     |        |                                   |                                  |
| ME    | 1-92-0001 | VARACTOR MVAM108 (MOT)              | 1   |     |        |                                   |                                  |
| ME    | 1-92-0002 | VARACTOR MVAM108M2 (MOT)            | 2   |     |        | D24,29 (UNMATCHED PAIR)           | MOT                              |
| ME    | 2-00-4148 | DIODE SIGNAL 1N4148                 | 2   |     |        | D25,28 (MATCHED PAIR)             | MOT                              |
| ME    | 2-00-4148 | DIODE SIGNAL 1N4148                 | 17  |     |        | ADA D1-D17                        |                                  |
| ME    | 2-01-0331 | DIODE KBP208 (AD/PS)                | 4   |     |        | SYN D1,2,3,4                      | NAT (SILICON)PDS                 |
| ME    | 2-01-0340 | DIODE SCHOTTKY MBR340               | 1   |     |        | PIS D101                          | NAT/PDS                          |
| ME    | 2-01-0822 | DIODE POWER MR822                   | 1   |     |        | PG D1                             |                                  |
| ME    | 2-03-4401 | TRANS 2N4401 NPN NATIONAL           | 6   |     |        | P/S D107-111,201                  | MOT                              |
| ME    | 2-03-4401 | TRANS 2N4401 NPN NATIONAL           | 16  |     |        | FPL Q1-16                         | MOTOROLA                         |
| ME    | 2-04-0031 | TRANS TIP31A NPN MOTOROLA           | 5   |     |        | ADA Q1,2,3,4,5                    | MOTOROLA                         |
| ME    | 2-04-0032 | TRANS TIP32A PNP MOTOROLA           | 2   |     |        | PR Q2,15                          | MOT/PDS/SSP                      |
| ME    | 2-04-6725 | TRANS 2N6725 NPN MOTOROLA           | 2   |     |        | PR Q3,14                          | MOT/PDS/STM                      |
| ME    | 2-51-2222 | TRANS PZT2222A NPN                  | 12  |     |        | FPL Q17-28                        | MOT/PDA/STM                      |
| ME    | 7-01-0007 | XTAL 24 MHZ (SMALL CAN)             | 2   |     |        | PR Q10,11                         | MOTOROLA                         |
| ME    | 7-05-0003 | BATTERY LITH PANA 3V                | 1   |     |        | PR Y1                             |                                  |
| ME    | 7-20-0002 | FILTER 20K LP ACTIVE AD             | 1   |     |        | PR B1                             |                                  |
| ME    | 7-20-0005 | INDUCTOR 0.580 uH VAR. (* or - 30%) | 8   |     |        | ADA J1-J8                         | PANA (BR2325)                    |
| ME    | 7-20-0008 | INDUCTOR 0.68uH 0.5 CTR             | 2   |     |        | PR L2,3                           |                                  |
| ME    | 7-20-0020 | INDUCTOR 820 nH                     | 1   |     |        | PR L4                             |                                  |
| ME    | 7-20-0027 | INDUCTOR 20 uH                      | 1   |     |        | PR L1                             |                                  |
| ME    | 7-20-0028 | INDUCTOR EE25 (AD/PS)               | 6   |     |        | PIS L102,103,104,105,106,201      |                                  |
| ME    | 7-20-0029 | INDUCTOR EM4215 (AD/PS)             | 1   |     |        | PIS L101                          |                                  |
| ME    | 7-20-0030 | INDUCTOR 8.2 uH                     | 1   |     |        | PIS T101                          |                                  |
|       |           |                                     | 1   |     |        | RP2                               |                                  |
|       |           |                                     |     |     |        | PART OF FILTER MOD TO RP2 REV D   |                                  |
|       |           |                                     |     |     |        |                                   | SEE APPENDIX B OF SERVICE MANUAL |

Revision 2.02

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| GROUP | PART No.  | DESCRIPTION                               | QTY | PCB                | PG                           | POSITION          | NOTES                            |
|-------|-----------|-------------------------------------------|-----|--------------------|------------------------------|-------------------|----------------------------------|
| ME    | 7-30-0006 | TORROID W/4TURNS (28 AWG) T37 CORE PG PCB | 2   | PG                 | L1,L2                        |                   |                                  |
| ME    | 7-30-0005 | TORROID RING FOR POWER SUPPLY CABLE       | 3   | P/S                | WRAP AROUND CABLE TO ADA PCB |                   | SEE APPENDIX B OF SERVICE MANUAL |
| MTL   | 9-01-1012 | PANEL FRONT WIPEM AD                      | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1049 | PANEL COVER AD                            | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1049 | PANEL COVER AD                            | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1050 | PANEL REAR WIPEM AD                       | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1051 | PANEL LEFT AD                             | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1052 | PANEL RIGHT AD                            | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1053 | SUPPORT DECK FRONT AD                     | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1054 | SUPPORT DECK REAR AD                      | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1055 | SUPPORT CENTER AD                         | 1   |                    |                              |                   |                                  |
| MTL   | 9-03-1056 | SUPPORT PROCESSOR AD                      | 1   |                    |                              |                   |                                  |
| MTL   | 9-08-0001 | TORSION BAR AD                            | 5   |                    |                              | FRONT PANEL ASSY  |                                  |
| MTL   | 9-08-0002 | SPRING DOOR AD                            | 1   |                    |                              |                   |                                  |
| OEM   | 7-10-0005 | VIDEO, AMPEX BLANK                        | 1   |                    |                              |                   |                                  |
| PCB   | 9-40-1038 | PCB AD AUDIO INPUT                        | 1   | I/P                |                              |                   | AMPEX                            |
| PCB   | 9-40-1039 | PCB AD AUDIO OUTPUT                       | 1   | O/P                |                              |                   |                                  |
| PCB   | 9-40-1040 | PCB AD MULTIPIN                           | 1   | M/P                |                              |                   |                                  |
| PCB   | 9-40-1041 | PCB AD SYNC I/O                           | 1   | SYN                |                              |                   |                                  |
| PCB   | 9-40-1042 | PCB AD AD-D/A (rev E)                     | 1   | ADA                |                              |                   |                                  |
| PCB   | 9-40-1043 | PCB AD PROCESSOR (REV G)                  | 1   | PR                 |                              |                   |                                  |
| PCB   | 9-40-1044 | PCB AD READ PREAMP 2 (REV E)              | 1   | RP2                |                              |                   |                                  |
| PCB   | 9-40-1047 | PCB AD ROTOR                              | 1   | ROTOR              |                              |                   |                                  |
| PCB   | 9-40-1048 | PCB AD FP LEFT                            | 1   | FPL                | PCB                          |                   |                                  |
| PCB   | 9-40-1049 | PCB AD FP RIGHT                           | 1   | FPR                | PCB                          |                   |                                  |
| PCB   | 9-40-1051 | PCB LRC MAIN AD                           | 1   |                    |                              |                   |                                  |
| PCB   | 9-40-1059 | PCB AD DIGITAL I/O                        | 1   | DIG                |                              |                   |                                  |
| PCB   | 9-40-1126 | PCB PG AD (REV X6)                        | 1   | PG                 |                              |                   |                                  |
| PKG   | 7-51-0508 | BAG POLY 5x8                              | 1   |                    |                              |                   |                                  |
| PKG   | 7-80-0023 | BOX GIFT AD (REV A)                       | 1   | UNIT               |                              |                   |                                  |
| PKG   | 7-80-0024 | BOX SHIPPING AD                           | 1   | INTERNAL           |                              |                   |                                  |
| PKG   | 7-81-0015 | FOAM MOLDED POLYSTYRENE AD                | 1   | EXTERNAL           |                              |                   |                                  |
| PKG   | 7-81-0016 | FOAM CORNER                               | 1   | BOX                |                              |                   |                                  |
| PKG   | 7-82-1001 | COVER CARDBOARD                           | 4   | BOX                |                              |                   |                                  |
| PKG   | 7-90-2430 | BAG POLY 24x30 2MIL                       | 1   |                    |                              | ACCESSORY CUTOOUT |                                  |
| PLS   | 5-04-0006 | INSULATOR (DB9)                           | 1   | UNIT               |                              |                   |                                  |
| PLS   | 9-11-1032 | WINDOW 7-SEG BEZEL AD                     | 1   | DB9 CONN (SYNC IN) |                              |                   |                                  |
| PLS   | 9-15-0019 | BEZEL CHANNEL BUTTON AD                   | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0020 | BEZEL CHANNEL AD                          | 8   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0021 | BEZEL TRANSPORT BUTTON AD                 | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0022 | BEZEL TRANSPORT AD                        | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0023 | BUTTON POWER AD                           | 5   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0024 | BUTTON EJECT AD                           | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0025 | BEZEL BUTTON AD/A2                        | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0026 | BEZEL PUSH AD/A2                          | 2   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0027 | BEZEL CASSETTE AD                         | 4   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0028 | DOOR CASSETTE AD                          | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0029 | EXTENDER POWER SWITCH AD                  | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0030 | STANDOFF DISPLAY AD                       | 8   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0031 | INSERT TRANS LENSE EJECT A                | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0059 | INSERT TRANS LENSE REC AD                 | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0060 | INSERT TRANS LENSE PLAY AD                | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0061 | INSERT TRANS LENSE STOP AD                | 1   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-0062 | INSERT TRANS LENSE FFRW A                 | 2   | FRONT PANEL ASSY   |                              |                   |                                  |
| PLS   | 9-15-1058 | CASE TOP LRC AD                           | 1   |                    |                              |                   |                                  |
| PLS   | 9-15-1059 | CASE BOTTOM LRC AD                        | 1   |                    |                              |                   |                                  |
| REP   | 2-01-0152 | DIODE FR152 (AD/PS)                       | 1   | P/S                | D104                         |                   |                                  |
| REP   | 2-01-0157 | DIODE FR157 (AD/PS)                       | 1   | P/S                | D102                         |                   |                                  |



| GROUP | PART No.  | DESCRIPTION              | QTY | PCB             | POSITION                                                       | NOTES                            |
|-------|-----------|--------------------------|-----|-----------------|----------------------------------------------------------------|----------------------------------|
| REP   | 2-02-0302 | DIODE 130V-2 (ADIPS)     | 1   | P/S             | D103                                                           |                                  |
| REP   | 2-02-0560 | DIODE 5.6V ZENER (ADIPS) | 1   | P/S             | D108                                                           |                                  |
| REP   | 2-05-0002 | TRANS CRO2AM (ADIPS)     | 1   | P/S             | Q103                                                           |                                  |
| REP   | 2-05-0108 | TRANS TIC168M (ADIPS)    | 1   | P/S             | Q102                                                           |                                  |
| REP   | 2-05-5461 | TRANS 2SK752 (ADIPS)     | 1   | P/S             | Q101                                                           |                                  |
| REP   | 2-29-0431 | IC TL431 (ADIPS)         | 1   | P/S             | U103                                                           |                                  |
| REP   | 2-29-0731 | IC TL731 (ADIPS)         | 1   | P/S             | U102                                                           |                                  |
| REP   | 2-29-3842 | IC UC3842 (ADIPS)        | 1   | P/S             | U101                                                           |                                  |
| REP   | 6-03-0002 | SWITCH POWER (ADIPS)     | 1   | P/S             | SW101                                                          |                                  |
| REP   | 7-03-0003 | BRIDGE RECT (ADIPS)      | 1   | P/S             | D101                                                           |                                  |
| REP   | 7-04-0004 | FUSE 2A 250V (ADIPS)     | 1   | P/S             | F101                                                           |                                  |
| RES   | 0-00-0000 | RES 0 OHM 1/8W 5%        | 1   | ADA             | R102                                                           |                                  |
| RES   | 0-00-0101 | RES 100 OHM 1/8W 5%      | 8   | FPR             | R1-8                                                           |                                  |
| RES   | 0-00-0102 | RES 100 OHM 1/8W 5%      | 4   | MAIN            | R11-R14                                                        |                                  |
| RES   | 0-00-0102 | RES 1K OHM 1/8W 5%       | 16  | FPL             | R1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31                    |                                  |
| RES   | 0-00-0103 | RES 1K OHM 1/8W 5%       | 3   | P/S             | R114,116,120                                                   |                                  |
| RES   | 0-00-0103 | RES 10K OHM 1/8W 5%      | 6   | ADA             | R5,6,7,33,79,101                                               |                                  |
| RES   | 0-00-0104 | RES 100K OHM 1/8W 5%     | 4   | P/S             | R110,117,118,122                                               |                                  |
| RES   | 0-00-0104 | RES 100K OHM 1/8W 5%     | 19  | ADA             | R16,24,25,26,27,28,29,30,31,34,40,41,42,43,44,45,60,81,83      |                                  |
| RES   | 0-00-0105 | RES 1M OHM 1/8W 5%       | 1   | P/S             | R109                                                           |                                  |
| RES   | 0-00-0113 | RES 11K OHM 1/8W 5%      | 8   | ADA             | R35,36,37,38,39,46,47,48                                       |                                  |
| RES   | 0-00-0150 | RES 15 OHM 1/8W 5%       | 8   | IP              | R4,14,26,37,42,47,48,50                                        |                                  |
| RES   | 0-00-0153 | RES 15K OHM 1/8W 5%      | 1   | P/S             | R108                                                           |                                  |
| RES   | 0-00-0163 | RES 16K OHM 1/8W 5%      | 8   | O/P             | R17,19,25,28,34,39,44,49                                       |                                  |
| RES   | 0-00-0163 | RES 16K OHM 1/8W 5%      | 8   | IP              | R9,20,21,22,32,33,44,45                                        |                                  |
| RES   | 0-00-0203 | RES 20K OHM 1/8W 5%      | 8   | O/P             | R18,20,24,29,35,40,45,50                                       |                                  |
| RES   | 0-00-0221 | RES 220 OHM 1/8W 5%      | 8   | O/P             | R1,3,5,7,9,11,13,15                                            |                                  |
| RES   | 0-00-0222 | RES 2.2K OHM 1/8W 5%     | 10  | SYN             | R4,5,6,7,8,9,10,11,12,13                                       |                                  |
| RES   | 0-00-0223 | RES 22K OHM 1/8W 5%      | 2   | P/S             | R119                                                           |                                  |
| RES   | 0-00-0243 | RES 24K OHM 1/8W 5%      | 2   | ADA             | R12,13                                                         |                                  |
| RES   | 0-00-0271 | RES 270 OHM 1/8W 5%      | 1   | LINEAR HEAD MOD |                                                                | SEE APPENDIX B OF SERVICE MANUAL |
| RES   | 0-00-0272 | RES 2.7K OHM 1/8W 5%     | 1   | P/S             | R111                                                           |                                  |
| RES   | 0-00-0331 | RES 330 OHM 1/8W 5%      | 9   | ADA             | R87,88,89,90,91,92,93,94,117                                   |                                  |
| RES   | 0-00-0332 | RES 3.3K OHM 1/8W 5%     | 4   | ADA             | R8,9,10,11                                                     |                                  |
| RES   | 0-00-0392 | RES 3.9K OHM 1/8W 5%     | 4   | SYN             | R14,15,16,17                                                   |                                  |
| RES   | 0-00-0393 | RES 3.9K OHM 1/8W 5%     | 15  | ADA             | R103,104,105,106,107,108,109,110,111,112,113,114,115,116,118   |                                  |
| RES   | 0-00-0433 | RES 4.3K OHM 1/8W 5%     | 8   | ADA             | R71,72,73,74,75,76,77,78                                       |                                  |
| RES   | 0-00-0472 | RES 4.7K OHM 1/8W 5%     | 8   | O/P             | R21,26,31,36,41,46,51,56                                       |                                  |
| RES   | 0-00-0474 | RES 470K OHM 1/8W 5%     | 8   | IP              | R5,10,15,19,27,31,38,43                                        |                                  |
| RES   | 0-00-0500 | RES 500 OHM 1/8W 5%      | 3   | SYN             | R1,2,3                                                         |                                  |
| RES   | 0-00-0502 | RES 500 OHM 1/8W 5%      | 2   | ADA             | R82,84                                                         |                                  |
| RES   | 0-00-0510 | RES 51 OHM 1/8W 5%       | 12  | FPL             | R33-34                                                         |                                  |
| RES   | 0-00-0510 | RES 51 OHM 1/8W 5%       | 2   | RP2             | PART OF FILTER MOD TO RP2 REV D                                |                                  |
| RES   | 0-00-0511 | RES 510 OHM 1/8W 5%      | 12  | ADA             | R1,2,3,4,14,15,95,96,97,98,99,100                              |                                  |
| RES   | 0-00-0511 | RES 510 OHM 1/8W 5%      | 7   | MAIN            | R1,R3-R8                                                       |                                  |
| RES   | 0-00-0511 | RES 510 OHM 1/8W 5%      | 24  | O/P             | R2,4,6,8,10,12,14,16,22,23,27,30,32,33,37,38,42,43,47,48,52-55 |                                  |
| RES   | 0-00-0690 | RES 68 OHM 1/8W 5%       | 1   | MAIN            | R10                                                            |                                  |
| RES   | 0-00-0750 | RES 75 OHM 1/8W 5%       | 1   | MAIN            | R9                                                             |                                  |
| RES   | 0-00-0782 | RES 7.8K OHM 1/8W 5%     | 1   | MAIN            | R2                                                             |                                  |
| RES   | 0-01-0050 | RES 5.11 OHM 1/8W 1%     | 2   | PR              | R32,R35 - SEE ECO #303602 & #305301                            |                                  |
| RES   | 0-01-0103 | RES 10K OHM 1/8W 1%      | 16  | FPL             | R2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32                   |                                  |
| RES   | 0-01-0103 | RES 10K OHM 1/8W 1%      | 8   | ADA             | R63,64,65,66,67,68,69,70                                       |                                  |
| RES   | 0-01-0142 | RES 1.4K OHM 1/8W 1%     | 32  | IP              | R1-3,6-9,11-13,16-18,23,25,28-30,34-38,39-41,48,49,51-56       |                                  |
| RES   | 0-01-0143 | RES 14K OHM 1/8W 1%      | 16  | ADA             | R49,50,51,52,53,54,55,56,57,58,59,60,61,62,65,68               |                                  |
| RES   | 0-05-0101 | RES 100 OHM 2W           | 8   | ADA             | R17,18,19,20,21,22,23,32                                       |                                  |
| RES   | 0-05-0163 | RES 16K 3W 5%            | 2   | PR              | R52,53                                                         |                                  |
| RES   | 0-05-0336 | RES 33 OHM 1W 5%         | 1   | P/S             | R105                                                           |                                  |
| RES   | 0-05-0221 | RES 220 OHM 1W 5%        | 1   | P/S             | R115                                                           |                                  |
| RES   | 0-05-0503 | RES 50 OHM 3W 5%         | 1   | PR              | R32 AND R51 OF REV D PROCESSOR PCB                             |                                  |
| RES   | 0-05-0503 | RES 50 OHM 3W 5%         | 1   | P/S             | R108                                                           |                                  |

| GROUP | PART No.  | DESCRIPTION                | QTY | PCB | POSITION                                                                                                      | NOTES                    |
|-------|-----------|----------------------------|-----|-----|---------------------------------------------------------------------------------------------------------------|--------------------------|
| RES   | 0-05-0750 | RES 7.5-15 OHM 1/2W 5%     | 1   | P/S | R107                                                                                                          |                          |
| RES   | 0-05-0753 | RES 75K 3W 5%              | 1   | P/S | R103                                                                                                          |                          |
| RES   | 0-10-0153 | RES 15K OHM 1/8W 5% 1206   | 1   | PR  | R128                                                                                                          |                          |
| RES   | 0-15-1824 | RES 085P005 (AD/PS)        | 1   | P/S | R102                                                                                                          |                          |
| RUB   | 9-23-1009 | STRIP FEET 10x130          | 2   |     |                                                                                                               |                          |
| RUB   | 9-23-1018 | FOAM TAPE DOOR AD          | 1   |     |                                                                                                               |                          |
| RUB   | 9-23-1019 | FOAM COVER PANEL SMALL AD  | 1   |     | CASSETTE DOOR                                                                                                 |                          |
| RUB   | 9-23-1019 | FOAM COVER PANEL SMALL AD  | 1   |     | COVER PANEL TOP                                                                                               |                          |
| RUB   | 9-23-1020 | FOAM COVER PANEL LARGE AD  | 1   |     | COVER PANEL BOTTOM                                                                                            |                          |
| RUB   | 9-23-1020 | FOAM COVER PANEL LARGE AD  | 1   |     | COVER PANEL TOP                                                                                               |                          |
| RUB   | 9-23-1022 | FOAM 7-SEG                 | 1   |     | COVER PANEL BOTTOM                                                                                            |                          |
| RUB   | 9-23-1023 | FOAM BARGRAPH              | 1   | FPR |                                                                                                               |                          |
| RUB   | 9-23-1024 | FEET RUBBER PA             | 1   | FPL |                                                                                                               |                          |
| RUB   | 9-23-1030 | KEYPAD, LRC                | 5   |     | MOLDED FOAM UPPER/ADA INSULATOR                                                                               |                          |
| RUB   | 9-21-1006 | KEYPAD RUBBER TRANSPORT AD | 1   |     |                                                                                                               |                          |
| RUB   | 9-21-1006 | KEYPAD RUBBER BUTTON AD/A2 | 6   |     | FRONT PANEL ASSY                                                                                              |                          |
| RUB   | 9-21-1007 | KEYPAD RUBBER CHANNEL AD   | 2   |     | FRONT PANEL ASSY                                                                                              |                          |
| SIP   | 0-06-0472 | RES 4.7K OHM 10 PIN SIP    | 1   |     | FRONT PANEL ASSY                                                                                              |                          |
| SMC   | 1-50-0104 | CAP 0.1 MF NPO 1206        | 1   | PR  | R4                                                                                                            |                          |
| SMC   | 1-50-0120 | CAP 12 PF NPO 1206         | 12  | RP2 | C1-C3 C6, C9-C10, C12, C14, C20, C23, C29, C99                                                                |                          |
| SMC   | 1-50-0220 | CAP 22 PF NPO 1206         | 1   | RP2 | C25                                                                                                           |                          |
| SMC   | 1-50-0271 | CAP 270 PF NPO 1206        | 1   | RP2 | C28                                                                                                           |                          |
| SMC   | 1-50-0330 | CAP 33 PF NPO 1206         | 1   | RP2 | C24                                                                                                           |                          |
| SMC   | 1-50-0500 | CAP 50 PF NPO 1206         | 1   | RP2 | C33                                                                                                           |                          |
| SMC   | 1-51-0104 | CAP 0.1 MF X7R 1206        | 2   | RP2 | C4-C5                                                                                                         |                          |
| SMC   | 1-51-0222 | CAP 2200 PF X7R 1206       | 11  | PR  | C35, 66, 72, 77, 88, 102, 112, 117, 129, 138, 140                                                             |                          |
| SMC   | 1-51-0223 | CAP 0.022 MF X7R 1206 50V  | 4   | RP2 | C8, C18, C26, C34                                                                                             |                          |
| SMC   | 1-51-0683 | CAP 0.068 MF X7R 1206 50V  | 4   | RP2 | C15-C16, C21-C22                                                                                              |                          |
| SMC   | 1-52-0033 | CAP 0.33 MF Z5U 1206       | 1   | RP2 | C19                                                                                                           |                          |
| SMC   | 1-55-0105 | CAP 0.01 MF X7R 0805       | 1   | RP2 | C13                                                                                                           |                          |
| SMC   | 1-55-0152 | CAP 1500 PF X7R 0805       | 1   | PG  | C1                                                                                                            |                          |
| SMC   | 1-55-0333 | CAP 33 PF NPO 0805         | 1   | PR  | C111                                                                                                          |                          |
| SMC   | 1-56-0100 | CAP 10 PF NPO 0805         | 2   | PR  | C105, 109                                                                                                     |                          |
| SMC   | 1-56-0101 | CAP 100 PF NPO 0805        | 4   | PR  | C106, 114, 120, 126                                                                                           |                          |
| SMC   | 1-56-0102 | CAP 0.001 MF NPO 0805      | 1   | PR  | C56                                                                                                           |                          |
| SMC   | 1-56-0103 | CAP 0.01 MF X7R 0805       | 10  | PR  | C37, 40, 69, 71, 75, 83, 84, 90, 91, 98                                                                       |                          |
| SMC   | 1-56-0150 | CAP 15 PF NPO 0805         | 9   | PR  | C8, 25, 26, 27, 56, 76, 94, 116, 119                                                                          |                          |
| SMC   | 1-56-0220 | CAP 22 PF NPO 0805         | 4   | PR  | C133, 134, 135, 136                                                                                           |                          |
| SMC   | 1-56-0271 | CAP 270 PF NPO 0805        | 6   | PR  | C38, 42, 107, 115, 121, 127                                                                                   |                          |
| SMC   | 1-56-0331 | CAP 330 PF NPO 0805        | 5   | PR  | C28, 31, 43, 103, 104                                                                                         |                          |
| SMC   | 1-56-0332 | CAP 3300 PF NPO 0805       | 1   | PR  | C97                                                                                                           |                          |
| SMC   | 1-56-0334 | CAP 0.033 MF X7R 0805      | 2   | PR  | C86, 142                                                                                                      |                          |
| SMC   | 1-57-0104 | CAP 0.1 MF Z5U 0805        | 1   | PR  | C110                                                                                                          |                          |
| SMC   | 1-57-0104 | CAP 0.1 MF Z5U 0805        | 50  | PR  | C6, 7, 9, 19, 21-23, 29, 30, 32, 33, 39, 41, 44, 45, 47, 49-54, 55, 60, 61, 63-65, 67, 73, 81, 86, 89, 92, 95 |                          |
| SMC   | 1-71-0105 | CAP 1.0 MF TANTB SMD-B     | 2   | PG  | C2, C5                                                                                                        |                          |
| SMC   | 1-71-0105 | CAP 1.0 MF TANTB SMD-B     | 5   | PR  | C34, 70, 73, 76, 85                                                                                           |                          |
| SMC   | 1-71-0475 | CAP 4.7 MF TANTB SMD-B     | 2   | PG  | C3, C7                                                                                                        |                          |
| SMC   | 1-73-0100 | CAP 10 MF TANTD SMD-D      | 1   | PR  | C74                                                                                                           |                          |
| SMC   | 1-73-0101 | CAP 100 MF TANT D 10V      | 10  | PR  | C1-5, 57, 59, 122, 137, 139                                                                                   |                          |
| SMC   | 1-73-0475 | CAP 4.7 MF TANTD 35V       | 1   | PG  | C4                                                                                                            |                          |
| SMC   | 1-73-0475 | CAP 47 MF TANTD SMD-D      | 3   | RP2 | C7, C11, C17                                                                                                  |                          |
| SMD   | 2-50-4148 | DIODE SIGNAL 1N4148 SMD    | 1   | PR  | C130                                                                                                          |                          |
| SMD   | 2-63-0001 | BRIDGE RECT DF04S SMD      | 27  | PR  | D1-23, 28, 30-32                                                                                              |                          |
| SMD   | 2-61-1172 | REG LT1172 SWITCHING       | 2   | PR  | U19, 20                                                                                                       |                          |
| SMD   | 2-61-7805 | REG LM78L05CM +5V SMD      | 1   | PG  | U4                                                                                                            |                          |
| SMD   | 7-20-0003 | INDUCTOR 2.7uH 1206        | 1   | PR  | U52                                                                                                           |                          |
| SMD   | 7-20-0004 | INDUCTOR 8.9uH 1206        | 1   | RP2 | L5                                                                                                            | LINEAR                   |
| SMD   | 2-28-0800 | IC DAC0800 8-BIT DAC NATIO | 1   | RP2 | L1                                                                                                            | NAT                      |
| SMD   | 2-27-0016 | ASIC SYNC AD               | 1   | PR  | U3                                                                                                            |                          |
| SMD   | 2-27-0016 | ASIC SYNC AD               | 1   | PR  | U34                                                                                                           | NAT (DAC0800)/SIG (08ED) |
| SMD   | 2-27-0016 | ASIC SYNC AD               | 1   | PR  | U34                                                                                                           | AMI                      |



| GROUP | PART No.  | DESCRIPTION                  | QTY | PCB | POSITION                                                              | NOTES                                    |
|-------|-----------|------------------------------|-----|-----|-----------------------------------------------------------------------|------------------------------------------|
| SMI   | 2-27-0017 | ASIC AUDIO AD                | 1   | PR  | U28                                                                   | AMI                                      |
| SMI   | 2-27-0018 | ASIC TAPE AD                 | 1   | PR  | U30                                                                   | AMI                                      |
| SMI   | 2-27-0019 | ASIC VU AD                   | 1   | PR  | U17                                                                   | AMI                                      |
| SMI   | 2-64-0138 | IC 74HC138 DEMUX/DEC SMD     | 2   | PR  | U1,2                                                                  | NAT/USIG/TOSH                            |
| SMI   | 2-64-0273 | IC 74HC273 OCTAL D FF SMD    | 2   | PR  | U15,16                                                                | NAT/USIG/TOSH                            |
| SMI   | 2-64-0541 | IC 74HC541 OCTAL BUFFER SM   | 3   | PR  | U6,7,9                                                                | NAT/USIG/TOSH                            |
| SMI   | 2-64-0573 | IC 74HC573 OCTAL D LATCH S   | 1   | PR  | U12                                                                   | NAT/USIG/TOSH                            |
| SMI   | 2-64-0574 | IC 74HC574 OCTAL D FF SMD    | 4   | PR  | U8,13,21,22                                                           | NAT/USIG/TOSH                            |
| SMI   | 2-64-7404 | IC 74HC04 HEX INVERTER SMD   | 3   | PR  | U25,49,53                                                             | NAT/USIG/TOSH                            |
| SMI   | 2-64-7405 | IC 74HC04 HEX INVERTER SM    | 5   | PR  | U24,46,47,48,50                                                       | NAT/USIG/TOSH                            |
| SMI   | 2-64-7446 | IC 74HC046 OCTAL D FF SMD    | 1   | PG  | U2                                                                    | NAT ONLY                                 |
| SMI   | 2-64-7474 | IC 74HC74 DUAL D FF SMD      | 3   | PR  | U11,41,44                                                             | NAT/USIG/TOSH                            |
| SMI   | 2-64-7486 | IC 74HC74 DUAL D FF SMD      | 1   | PG  | U3                                                                    | NAT/USIG/TOSH                            |
| SMI   | 2-64-9174 | IC 74HC88 QUAD 2-IN EXOR S   | 1   | PR  | U43                                                                   | NAT/USIG/TOSH                            |
| SMI   | 2-65-0708 | IC 74HC174 HEX D FF SMD      | 1   | PR  | U10                                                                   | NAT/USIG/TOSH                            |
| SMI   | 2-65-1256 | IC TC7S09F SINGLE AND SMD    | 1   | PR  | U51                                                                   | NAT/USIG/TOSH                            |
| SMI   | 2-67-0257 | IC 256K x 4 DRAM SMD         | 1   | PR  | U29                                                                   | TOSH (TC7S081F)                          |
| SMI   | 2-67-5168 | IC 32K x 8 SRAM (H5168N-10L) | 3   | PR  | U31,32,33                                                             | TITMS44C256-80N/VITELIC (V53C104AP80)    |
| SMI   | 2-70-8031 | IC 80C31 MPU SMD             | 1   | PR  | U4                                                                    | SONY (CXK58258SP45)/TOSH (TC55257BFL-10) |
| SMI   | 2-71-0082 | IC TL082 DUAL OPAMP SMD      | 1   | PR  | U14                                                                   | SHARP (LH5168-10L)/TOSH (TC5563-10)      |
| SMI   | 2-71-0592 | IC TL084 QUAD OPAMP SMD      | 1   | PR  | U27                                                                   | SIG (SC8031BCCA44)                       |
| SMI   | 2-72-0311 | IC NE592 VIDEO AMP SMD       | 3   | PR  | U35,36,39                                                             | TI (TL082C)                              |
| SMI   | 2-72-0339 | IC LM331 ANALOG COMP SMD     | 2   | RP2 | U2,U3                                                                 | TI (TL084C)                              |
| SMI   | 2-72-0339 | IC LM339 ANALOG COMP SMD     | 1   | PR  | U26                                                                   | SIG/ITI (ANY 592 OK)                     |
| SMI   | 2-72-0529 | IC DIFF COMP NE529           | 1   | PG  | U40                                                                   | NAT/ITI                                  |
| SMI   | 2-73-4053 | IC CD4053 ANALOG SWITCH SM   | 1   | RP2 | U1                                                                    | NAT/ITI                                  |
| SMI   | 2-78-0558 | IC CD4053 ANALOG SWITCH SM   | 2   | PR  | U4                                                                    | NAT (LM381M)/TUSIG (NE529)               |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | U37,38                                                                | SIG/RCA/TOSH                             |
| SMI   | 2-51-4403 | TRANS 2N4403 PNP SMD         | 1   | RP2 | U1                                                                    | SIG/RCS/TOSH                             |
| SMI   | 2-51-4403 | TRANS 2N4403 PNP SMD         | 17  | PR  | Q1,4,5,7,8,9,12,16-22,24-26                                           | NAT/SIG (NE538D)                         |
| SMI   | 2-51-4403 | TRANS 2N4403 PNP SMD         | 6   | RP2 | Q1,Q2,Q3,Q4,Q8,Q7                                                     | MOT/IPS/SSP                              |
| SMI   | 2-51-4403 | TRANS 2N4403 PNP SMD         | 2   | PR  | Q6,23                                                                 | SIG/POS/SSP                              |
| SMI   | 2-51-4403 | TRANS 2N4403 PNP SMD         | 1   | RP2 | Q5                                                                    | SIG/POS/SSP                              |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | RP2 | R22                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 3   | PR  | R32,R35,R226                                                          |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R147                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R222                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R148                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | RP2 | R11                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | RP2 | R10                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R149                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R221                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 53  | PR  | R15,18-27,59,61-75,133,150,151,155,177-182,184-196,205-207            |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 19  | PR  | R2,26,58,78,88,90,93,96,102,108,112,122,124,125,127,134,146,178,225   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 5   | RP2 | R5,R13,R17-R18,R32                                                    |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 21  | PR  | R1,3,12,17,28,37,76,80,84,86,87,91,97,161,175,197,203,212,223,227,228 |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 5   | RP2 | R2,R12,R25-R26,R39                                                    |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 19  | PR  | R5,9,50,89,95,103,107,110,135,154,159,167,173,208-211,214,230         |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 4   | PR  | R11,14,114,121                                                        |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R77                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R198                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 4   | PR  | R152,163,170,174                                                      |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R213                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | RP2 | R6                                                                    |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R215                                                                  |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 1   | PR  | R54                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 10  | RP2 | R14                                                                   |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 4   | PR  | R1,R3,R4,R6-R7,R23,R31,R95-R97                                        |                                          |
| SMI   | 2-51-4401 | TRANS 2N4401 NPN SMD         | 4   | PR  | R57,158,168,172                                                       |                                          |

| GROUP | PART No.  | DESCRIPTION                | QTY | PCB | POSITION                                                 | NOTES |
|-------|-----------|----------------------------|-----|-----|----------------------------------------------------------|-------|
| SMR   | 0-10-0203 | RES 20K OHM 1/8W 5% 1206   | 1   | PR  | R115                                                     |       |
| SMR   | 0-10-0204 | RES 200K OHM 1/8W 5% 1206  | 1   | PR  | R81                                                      |       |
| SMR   | 0-10-0222 | RES 2.2K OHM 1/8W 5% 1206  | 2   | PR  | R202,204                                                 |       |
| SMR   | 0-10-0272 | RES 2.7K OHM 1/8W 5% 1206  | 1   | PR  | R153                                                     |       |
| SMR   | 0-10-0302 | RES 3K OHM 1/8W 5% 1206    | 1   | PR  | R224                                                     |       |
| SMR   | 0-10-0332 | RES 3.3K OHM 1/8W 5% 1206  | 9   | PR  | R82,92,113,119,120,131,137,141,142                       |       |
| SMR   | 0-10-0332 | RES 3.3K OHM 1/8W 5% 1206  | 1   | RP2 | R28                                                      |       |
| SMR   | 0-10-0333 | RES 33K OHM 1/8W 5% 1206   | 2   | PR  | R98,140                                                  |       |
| SMR   | 0-10-0334 | RES 330K OHM 1/8W 5% 1206  | 1   | PR  | R111                                                     |       |
| SMR   | 0-10-0363 | RES 36K OHM 1/8W 5% 1206   | 1   | PR  | R83                                                      |       |
| SMR   | 0-10-0391 | RES 360 OHM 1/8W 5% 1206   | 2   | RP2 | R9, R27                                                  |       |
| SMR   | 0-10-0392 | RES 3.9K OHM 1/8W 5% 1206  | 1   | PR  | R56                                                      |       |
| SMR   | 0-10-0392 | RES 3.9K OHM 1/8W 5% 1206  | 1   | RP2 | R20                                                      |       |
| SMR   | 0-10-0393 | RES 39K OHM 1/8W 5% 1206   | 2   | PR  | R118,218                                                 |       |
| SMR   | 0-10-0394 | RES 390K OHM 1/8W 5% 1206  | 2   | PR  | R38,217                                                  |       |
| SMR   | 0-10-0432 | RES 4.3K OHM 1/8W 5% 1206  | 1   | PR  | R100                                                     |       |
| SMR   | 0-10-0433 | RES 43K OHM 1/8W 5% 1206   | 1   | PR  | R118                                                     |       |
| SMR   | 0-10-0471 | RES 470 OHM 1/8W 5% 1206   | 4   | PR  | R16,101,109,136                                          |       |
| SMR   | 0-10-0472 | RES 4.7K OHM 1/8W 5% 1206  | 17  | PR  | R9,31,34,39,45,48,79,105,106,129,130,132,145,183,200,201 |       |
| SMR   | 0-10-0473 | RES 47K OHM 1/8W 5% 1206   | 7   | PR  | R7,33,36,43,44,49,216                                    |       |
| SMR   | 0-10-0510 | RES 51 OHM 1/8W 5% 1206    | 2   | PR  | R160,164                                                 |       |
| SMR   | 0-10-0511 | RES 510 OHM 1/8W 5% 1206   | 1   | PR  | R165                                                     |       |
| SMR   | 0-10-0511 | RES 510 OHM 1/8W 5% 1206   | 3   | RP2 | R19,R21,R30                                              |       |
| SMR   | 0-10-0512 | RES 5.1K OHM 1/8W 5% 1206  | 4   | PR  | R94,157,162,171                                          |       |
| SMR   | 0-10-0513 | RES 51K OHM 1/8W 5% 1206   | 2   | PR  | R168,169                                                 |       |
| SMR   | 0-10-0680 | RES 68 OHM 1/8W 5% 1206    | 1   | PR  | R229                                                     |       |
| SMR   | 0-10-0750 | RES 75 OHM 1/8W 5% 1206    | 2   | PR  | R30                                                      |       |
| SMR   | 0-10-0820 | RES 82 OHM 1/8W 5% 1206    | 1   | PR  | R104                                                     |       |
| SMR   | 0-10-0821 | RES 820 OHM 1/8W 5% 1206   | 2   | PR  | R40,41                                                   |       |
| SMR   | 0-10-0822 | RES 8.2K OHM 1/8W 5% 1206  | 2   | PR  | R55,144                                                  |       |
| SMR   | 0-10-0823 | RES 82K OHM 1/8W 5% 1206   | 1   | PR  | R99                                                      |       |
| SMR   | 0-10-0911 | RES 910 OHM 1/8W 5% 1206   | 1   | RP2 | R15                                                      |       |
| SMR   | 0-10-0912 | RES 9.1K OHM 1/8W 5% 1206  | 3   | PR  | R123,126,199                                             |       |
| SMR   | 0-11-0172 | RES 1.65K OHM 1/8W 1% 1206 | 2   | RP2 | R16,R24                                                  |       |
| SMR   | 0-11-0212 | RES 2.05K OHM 1/8W 1% 1206 | 1   | PR  | R8                                                       |       |
| SMR   | 0-11-0473 | RES 4.75K OHM 1/8W 1% 1206 | 1   | PR  | R10                                                      |       |
| SMR   | 0-11-0513 | RES 5.11K OHM 1/8W 1% 1206 | 2   | PR  | R219,220                                                 |       |
| SMR   | 0-11-1272 | RES 12.7K OHM 1/8W 1% 1206 | 1   | PR  | R138                                                     |       |
| SMR   | 0-11-2431 | RES 2.43K OHM 1/8W 1% 1206 | 1   | PR  | R145                                                     |       |
| SMR   | 0-11-3571 | RES 3.57K OHM 1/8W 1% 1206 | 1   | PR  | R13                                                      |       |
| SMR   | 0-11-4532 | RES 45.3K OHM 1/8W 1% 1206 | 1   | PR  | R139                                                     |       |
| SMR   | 0-11-6981 | RES 6.98K OHM 1/8W 1% 1206 | 2   | PR  | R95,117                                                  |       |
| SMR   | 0-15-0102 | RES 1K OHM 1/10W 5% 0805   | 1   | PR  | R143                                                     |       |
| SMR   | 0-15-0103 | RES 10K OHM 1/10 W 5% 0805 | 3   | PG  | R1,R14,R16                                               |       |
| SMR   | 0-15-0105 | RES 1M OHM 1/10W 5% 0805   | 4   | PG  | R4-R7                                                    |       |
| SMR   | 0-15-0153 | RES 15K OHM 1/10W 5% 0805  | 1   | PG  | R8                                                       |       |
| SMR   | 0-15-0223 | RES 22K OHM 1/10W 5% 0805  | 1   | PG  | R15                                                      |       |
| SMR   | 0-15-0333 | RES 3.3K OHM 1/10W 5% 0805 | 1   | PG  | R3                                                       |       |
| SMR   | 0-15-0474 | RES 4.7K OHM 1/10W 5% 0805 | 1   | PG  | R12                                                      |       |
| SMR   | 0-15-0475 | RES 47K OHM 1/10W 5% 0805  | 1   | PG  | R2                                                       |       |
| SMR   | 0-15-0514 | RES 51K OHM 1/10W 5% 0805  | 1   | PG  | R13                                                      |       |
| SMR   | 0-15-0563 | RES 5.6K OHM 1/10W 5% 0805 | 1   | PG  | R9                                                       |       |
| SMS   | 4-12-0244 | SOCKET 44 PIN PLCC SMD     | 3   | PR  | R11                                                      |       |
| SMS   | 4-12-0284 | SOCKET 84 PIN PLCC SMD     | 2   | PR  | U14,17,34                                                |       |
| SOC   | 4-04-0016 | SOCKET 16-PIN DIP 0.3      | 2   | PR  | U28,30                                                   |       |
| SOC   | 4-06-0028 | SOCKET 28-PIN DIP 0.6      | 8   | ADA | U18,29                                                   |       |
| SWT   | 8-02-0011 | SWITCH, TACT               | 1   | PR  | U1,2,3,4,5,6,7,8                                         |       |
|       |           |                            | 13  | LRC |                                                          |       |



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Rev A 1/5/94 JWS

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| PART No.                              | DESCRIPTION                               | QTY |
|---------------------------------------|-------------------------------------------|-----|
| <b>ADAT PCBs</b>                      |                                           |     |
| 9-79-0004                             | ASSY, AD FRONT PANEL LEFT PCB             |     |
| 9-79-0006                             | ASSY, AD FRONT PANEL RIGHT PCB            |     |
| 9-79-0005                             | ASSY, AD PCB MULTIPIN CON                 |     |
| 9-79-0007                             | ASSY, AD PCB DIG I/O                      |     |
| 9-79-0009                             | ASSY, AD PCB ADA (REV E)                  |     |
| 9-79-0010                             | ASSY, AD PCB I/P                          |     |
| 9-79-0011                             | ASSY, AD PCB O/P                          |     |
| 9-79-0015                             | ASSY, AD PCB SYNC                         |     |
| 9-79-0034                             | ASSY, AD PCB MAIN PR (REV G)              |     |
| 9-79-0057                             | ASSY, AD PCB RP2 (REV G)                  |     |
| <b>ADAT ASSEMBLIES</b>                |                                           |     |
| 9-96-0002                             | ASSY, AD FRONT PANEL                      |     |
| 9-96-1181                             | ASSY, POWER SUPPLY AD                     |     |
| 9-96-1159                             | ASSY, AD PG COMPLETE (REV X6)             |     |
| 89-96-1009                            | ASSY, TRANSFORMER ROTARY AD PACKAGED      |     |
| <b>ADAT INTERNAL CABLE ASSEMBLIES</b> |                                           |     |
| 4-18-1403                             | CABLE 16-PIN 6 0.1 DIL                    |     |
| 4-18-1406                             | CABLE 16-PIN 2.5 0.1DIL                   |     |
| 4-18-1407                             | CABLE 16-PIN 2.5 0.1DIL (REVERSE)         |     |
| 4-18-1408                             | CABLE 50-PIN 2.0 1 CON 0.1 DIL            |     |
| 4-18-1409                             | CABLE 14-PIN 10 0.1 DIL                   |     |
| 4-18-1616                             | CABLE 16 PIN DIL 3.0, 0.1 CTR             |     |
| 4-19-1300                             | CABLE 5-PIN 370MM SIL 2MM                 |     |
| 4-19-1301                             | CABLE 5-PIN 150MM SIL 2MM                 |     |
| 4-19-1302                             | CABLE 6-PIN 225MM SIL 2MM                 |     |
| 4-19-1303                             | CABLE 6-PIN 100MM SIL 2MM                 |     |
| 4-19-1305                             | CABLE 8-PIN 600MM SIL 2MM                 |     |
| 4-19-1307                             | CABLE 14-PIN 520MM SIL 2MM                |     |
| 4-19-1308                             | CABLE 14-PIN 700MM SIL 2MM                |     |
| 4-19-1309                             | CABLE 5-PIN 110MM SIL 8MM                 |     |
| <b>ADAT SOCKETED ICs</b>              |                                           |     |
| 2-25-1700                             | IC PCM1700P DAC BURR-BROWN                |     |
| 2-25-5336                             | IC CS5336 ADC CRYSTAL SEMI                |     |
| 2-31-0001                             | IC SOFTWARE EPROM AD                      |     |
| 2-27-0016                             | ASIC SYNC AD                              |     |
| 2-27-0017                             | ASIC AUDIO AD                             |     |
| 2-27-0018                             | ASIC TAPE AD                              |     |
| 2-27-0019                             | ASIC VU AD                                |     |
| 2-70-8031                             | IC 80C31 MPU SMD                          |     |
| <b>ADAT HARDWARE MODS</b>             |                                           |     |
| 1-02-0104                             | CAP 0.1 MF CERDISC 10% (MODE SW MODS)     |     |
| 1-23-0103                             | CAP 0.01 MF FILM 5% POLYCARB (WIMA)       |     |
| 1-09-0480                             | CAP 4700 MF 10V (FRONT PANEL MOD)         |     |
| 5-04-0006                             | INSULATOR (DB9 SYNC INPUT CONNECTOR)      |     |
| 5-04-0003                             | SPACER #4x1/4x1/4 (ELCO PCB MODS)         |     |
| 7-30-0005                             | TORROID RING - POWER SUPPLY CABLE         |     |
| <b>ADAT HARDWARE</b>                  |                                           |     |
| 9-23-1024                             | FEET RUBBER AD                            |     |
| 9-96-1179                             | ASSY, PANEL COVER TOP (WITH FOAM)         |     |
| 9-96-1180                             | ASSY, PANEL COVER BOTTOM (WITH FOAM)      |     |
| 9-03-1051                             | PANEL LEFT AD                             |     |
| 9-03-1052                             | PANEL RIGHT AD                            |     |
| 5-00-0003                             | SCREW 6-32 x 1/4 BLK (TOP/BOTTOM PANEL)   |     |
| 5-00-0016                             | SCREW 6-32 x 1/4 ZNC (PCB MOUNTING)       |     |
| 5-02-0007                             | SCREW 4 x 40 JACK (9 PIN D SHELL NUT)     |     |
| 5-03-0003                             | STANDOFF 6-32 F-F (HEAT SINKS & ELCO PCB) |     |
| 5-03-0006                             | STANDOFF 6-32 F-F (RP2 MOUNTING)          |     |
| 5-03-0007                             | STANDOFF 6-32 M-F (RP2 MOUNTING)          |     |

| PART No.                    | DESCRIPTION                            | QTY |
|-----------------------------|----------------------------------------|-----|
| <b>ADAT TRANSPORT PARTS</b> |                                        |     |
| -7-14-0014                  | ARM BAND TENSION                       |     |
| -7-10-0014                  | ASSY BRK SOL AD (REV B)                |     |
| 88-20-0062                  | ASSY AD HEADSTACK PACKAGED             |     |
| 89-96-1156                  | ASSY, AD TRANSPORT (COMPLETE) PACKAGED |     |
| 7-10-1125                   | ASSY, TRANSPORT (NO HEADSTACK)         |     |
| -9-96-1163                  | ASSY CLUTCH REEL MOTOR                 |     |
| -9-96-1168                  | ASSY HEAD LINEAR                       |     |
| -9-96-1169                  | ASSY LED TRANSPORT AD                  |     |
| 89-96-1192                  | ASSY MOTOR CAPSTAN (VER.2) PACKAGED    |     |
| 89-96-1162                  | ASSY MOTOR THREAD                      |     |
| -9-96-1164                  | ASSY P2 TRANSPORT AD                   |     |
| -9-96-1165                  | ASSY P3 TRANSPORT AD                   |     |
| -7-14-0040                  | ASSY PCB MOTOR DRUM                    |     |
| -9-96-1167                  | ASSY SENSOR TAC                        |     |
| -7-14-0005                  | BELT THREAD MOTOR                      |     |
| -7-14-0017                  | BELT HALL SENSOR WHEEL                 |     |
| -7-14-0003                  | BELT, CAPSTAN MOTOR                    |     |
| -7-14-0025                  | BRACKET, IMPD RLR MNT                  |     |
| -7-14-0039                  | CAP P4 PLASTIC ANGLED                  |     |
| -7-14-0036                  | GUIDE, P1/P4                           |     |
| -7-14-0015                  | HUB, SUPPLY REEL                       |     |
| -7-14-0016                  | HUB, TAKE-UP REEL                      |     |
| -7-14-0009                  | IDLER ASSY                             |     |
| -7-14-0029                  | LED ASSY (TRANSPORT)                   |     |
| -7-14-0008                  | MOTOR, REEL (AD)                       |     |
| -7-14-0037                  | POST, P4 (TRANSPORT)                   |     |
| -7-14-0024                  | ROLLER, IMPDNC (W/BASE)                |     |
| -7-14-0034                  | ROLLER, P2, P3                         |     |
| -7-14-0027                  | ROLLER, PINCH                          |     |
| -7-14-0038                  | SCREW, CONICAL                         |     |
| -7-14-0023                  | SENSOR, TAKE-UP REEL END               |     |
| -7-14-0068                  | SWITCH, CASSETTE IN/OUT                |     |
| -7-14-0019                  | SWITCH, MODE (0080CNBKP)               |     |
| -7-14-0021                  | SWITCH, RECORD/TAPE IN                 |     |
| -7-14-0048                  | TRANSISTOR, HALL SENSOR                |     |
| -7-14-0018                  | WHEEL, HALL SENSOR                     |     |
| -7-14-0020                  | SENSOR, HALL                           |     |
| -7-14-0022                  | SENSOR, SUPPLY REEL END                |     |
| <b>ADAT ACCESSORIES</b>     |                                        |     |
| 4-73-0001                   | CABLE FIBER OPTIC                      |     |
| 7-41-0001                   | CABLE POWER UL/CSA (SVT)               |     |
| 7-51-1026                   | MANUAL REFERENCE AD                    |     |
|                             | TAPE, ALIGNMENT AD                     |     |
|                             | TAPE, OVERWRITE AD                     |     |
|                             | TAPE, TENSION AD                       |     |
|                             | TOOL, LINEAR HEAD ADJUSTMENT AD        |     |
|                             | TOOL, P2/P3 ADJUSTMENT AD              |     |
| 7-10-0005                   | VIDEO, AMPEX BLANK                     |     |
| <b>OTHER PARTS</b>          |                                        |     |

| GROUP | PART No.   | DESCRIPTION                              | TRANSPORT PARTS - MOST COMMONLY USED |     |     |  | POSITION | NOTES |
|-------|------------|------------------------------------------|--------------------------------------|-----|-----|--|----------|-------|
|       |            |                                          | ARM BAND TENSION                     | QTY | PCB |  |          |       |
| TNSP  | -7-14-0014 | ARM BAND TENSION                         |                                      | 1   |     |  |          |       |
| TNSP  | 88-20-0062 | ASSY AD HEADSTACK PACKAGED               |                                      | 1   |     |  |          |       |
| TNSP  | -7-10-0014 | ASSY BRK SOL AD (REV B)                  |                                      | 2   |     |  |          |       |
| TNSP  | -8-98-1163 | ASSY CLUTCH REEL MOTOR                   |                                      | 1   |     |  |          |       |
| TNSP  | -8-98-1168 | ASSY HEAD LINEAR                         |                                      | 1   |     |  |          |       |
| TNSP  | -9-98-1169 | ASSY LED TRANSPORT AD                    |                                      | 1   |     |  |          |       |
| TNSP  | 9-98-1161  | ASSY MOTOR CAPSTAN (VER.1)               |                                      | 1   |     |  |          |       |
| TNSP  | 89-98-1192 | ASSY MOTOR CAPSTAN (VER.2) PACKAGED      |                                      | 1   |     |  |          |       |
| TNSP  | -9-98-1162 | ASSY MOTOR THREAD                        |                                      | 1   |     |  |          |       |
| TNSP  | -9-98-1164 | ASSY P2 TRANSPORT AD                     |                                      | 1   |     |  |          |       |
| TNSP  | -9-98-1165 | ASSY P3 TRANSPORT AD                     |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0040 | ASSY PCB MOTOR DRUM                      |                                      | 1   |     |  |          |       |
| TNSP  | -9-98-1167 | ASSY SENSOR TAC                          |                                      | 1   |     |  |          |       |
| TNSP  | 89-98-1009 | ASSY TRANSFORMER ROTARY AD PACKAGED      |                                      | 1   |     |  |          |       |
| TNSP  | 89-98-1156 | ASSY TRANSPORT AD (COMPLETE)             |                                      | 1   |     |  |          |       |
| TNSP  | 7-10-1125  | ASSY TRANSPORT (REV B) AD (NO HEADSTACK) |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0017 | BELT HALL SENSOR WHEEL                   |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0003 | BELT MOTOR CAPSTAN                       |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0005 | BELT THREAD MOTOR                        |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0025 | BRACKET, IMPD RLR MINT                   |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0039 | CAP P4 PLASTIC ANGLED                    |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0041 | COVER MOTOR DRUM                         |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0036 | GUIDE, P1P4                              |                                      | 2   |     |  |          |       |
| TNSP  | -7-14-0015 | HUB, SUPPLY REEL                         |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0016 | HUB, TAKE-UP REEL                        |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0008 | IDLER ASSY                               |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0070 | LED (TRANSPORT)                          |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0029 | LED ASSY (TRANSPORT)                     |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0008 | MOTOR, REEL (AD)                         |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0004 | MOTOR, THREAD                            |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0037 | POST, P4 (TRANSPORT)                     |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0024 | ROLLER, IMPDNC (WBASE)                   |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0034 | ROLLER, P2, P3                           |                                      | 2   |     |  |          |       |
| TNSP  | -7-14-0027 | ROLLER, PINCH                            |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0038 | SCREW, CONICAL                           |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0020 | SENSOR, HALL                             |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0022 | SENSOR, SUPPLY REEL END                  |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0023 | SENSOR, TAKE-UP REEL END                 |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0087 | SENSOR, TAPE END                         |                                      | 2   |     |  |          |       |
| TNSP  | -7-14-0068 | SWITCH, CASSETTE IN/OUT                  |                                      | 2   |     |  |          |       |
| TNSP  | -7-14-0019 | SWITCH, MODE (0080CNBKP)                 |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0021 | SWITCH, RECORD TAPE IN                   |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0048 | TRANS, HALL SENSOR                       |                                      | 1   |     |  |          |       |
| TNSP  | -7-14-0018 | WHEEL, HALL SENSOR                       |                                      | 1   |     |  |          |       |



**ADAT HARDWARE MODS QUICK REFERENCE PARTS LIST**

The following list includes the part numbers for those hardware modifications which are required for ADATs being serviced in the field.

| Mod Name              | Affected PCB                      | Parts Required                                                                                                                                                                                                         | Current Part Number                              | Mod Part Number                              |
|-----------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------|
| Cap Mod               | Processor PCB                     | Jumper wire from U39 pin 4 to collector of Q15                                                                                                                                                                         | None                                             | 4-19-1600                                    |
| VCO Mod               | Processor PCB                     | Change R153 from 3.3K to 2.7K<br>Change C133, C134, C135 and C136 from 6.8 pF to 15pF<br>Change L1 from 0.68 $\mu$ H to 0.82 $\mu$ H                                                                                   | 0-10-332<br>1-56-0068<br>7-20-0006               | 0-10-0272<br>1-56-0150<br>7-20-0020          |
| New Lower Drum        | Processor PCB<br>Lower Drum Cable | Change Lower drum cable to include "X6" PCB<br>Remove R60 from Processor PCB<br>Change R215 from 470K to 150K on Processor PCB<br>Change R104 from 100 ohms to 82 ohms on Processor<br>Add 24K resistor to linear Head | 4-19-1304<br>0-05-0040<br>0-10-0474<br>0-10-0101 | 9-96-1159<br>-----<br>0-10-0154<br>0-10-0820 |
| Linear Head Mod       | Linear Head                       | Remove R21                                                                                                                                                                                                             | None                                             | 0-00-0243                                    |
| Read Pre-2 Filter Mod | Read Pre-2 Rev D                  | Install RLC circuit in location formerly occupied by R21<br>- Add 8.2 $\mu$ H Inductor<br>- Add 500 Ohm resistor<br>- Add 39 pF capacitor                                                                              | 0-10-0102<br><br>None<br>None<br>None            | -----<br>7-20-0030<br>0-00-0502<br>1-02-0390 |
| Read Pre-2 Cap Mod    | Read Pre-2 Rev E                  | Change C18 from 0.047 $\mu$ F to 2200pF                                                                                                                                                                                | 1-51-0473                                        | 1-51-0222                                    |
| 2.01 EPROM Change     | Processor PCB Rev D               | Change from 256K to 512K EPROM<br>Change R221 from 1 Meg to 0 ohms                                                                                                                                                     | 2-19-0256<br>0-10-0105                           | 2-31-0001<br>0-10-0000                       |
| 3.00 EPROM Change     | Processor PCB Rev D               | Change Brake Resistors R32 and R51 to 220 Ohms                                                                                                                                                                         | 0-05-0XXX                                        | 0-05-0221                                    |
| WIMA Cap Check        | Processor PCB                     | Change C80, C93 and C96 to WIMA variety                                                                                                                                                                                | 1-23-0103                                        | 1-23-0103                                    |
| ELCO PCB Spacers      | ELCO PCB                          | Add nylon washers to ELCO PCB assembly                                                                                                                                                                                 | None                                             | 5-04-0010                                    |
| Capstan Motor         | Capstan Motor                     | Replace "old" capstan motor with "new" motor                                                                                                                                                                           | 9-96-1161                                        | 89-96-1192                                   |
| Toroid Installation   | Power Supply                      | Add three toroid rings to power supply ADA connector                                                                                                                                                                   | None                                             | 7-30-0005                                    |
| Mode Switch Mod       | Mode Switch                       | Add three 0.1 $\mu$ F capacitors to mode switch                                                                                                                                                                        | None                                             | 1-02-0104                                    |
| Front Panel Cap       | Front Panel Left PCB              | Change C100 from 1000 $\mu$ F to 4700 $\mu$ F                                                                                                                                                                          | 1-07-0102                                        | 1-09-0479                                    |
| Sync PCB Insulator    | Sync PCB                          | Add Insulator to 9 pin input connector<br>Add Plastic Washers to 9 pin input connector                                                                                                                                 | None<br>None                                     | 5-04-0006<br>5-04-0002                       |



**ADAT PARTS ORDER FORM**

## 12.1. Oscilloscope Set Up

### 12.1.1. Channel 1

- Same as Step 10.1.1

### 12.1.2. Channel 2

Probe will monitor cathode of D14 on the Processor PCB.

- Set to 0.5 Volts/Div.
- Use DC Coupling
- Use the POSITION knob to set the GND trace on the first division line from the bottom of the scope display.

### 12.1.3. Trigger

- Same As Step 8.1.3

### 12.1.4. Vert. Mode

- Set Ch. 1 to ON
- Set Ch. 2 to ON
- Use 20 MHz Bandwidth Limit

## 12.2. Linear Head Maximization

12.2.1. Insert the Alesis Alignment Tape into the ADAT and press **PLAY**.

12.2.2. Monitor the voltage at the cathode of D14 on the Processor PCB.

12.2.3. Adjust the linear head azimuth by turning the linear head azimuth adjust screw located at the bottom of the linear head assembly (see fig. E-5) until a narrow spike is observed on the oscilloscope. Refer to section 4.3.4.3 for more details on Linear Head Adjustment.

12.2.4. Adjust the linear head height by turning the linear head height adjustment nut (see fig. E-5) with the linear head adjustment tool until a maximum amplitude of the voltage spike is observed on the oscilloscope. Refer to section 4.3.4.3 for more details on Linear Head Adjustment.

12.2.5. Verify that the voltage of the spike is at least 0.5 volts.

12.2.6. Record the voltage off of D14 on the data sheet.

## 12.3. Envelope Flatness

12.3.1. Uncalibrate channel 1 of the scope and adjust the PG high envelope to 3 volts p-p.

12.3.2. Place your index finger against the linear head height adjustment nut (see fig. E-5) and move the linear head assembly forward with your thumb. The envelope amplitude should decrease.

12.3.3. Continue moving the linear head until the maximum portion of the envelope measures 1.5 volts p-p.

12.3.4. Verify that no portion of the envelope is less than 0.5 volts p-p.

12.3.5. If the above condition is not met, adjust the P2 post (to flatten the left side of envelope) or P3 post (to flatten the right side of envelope) with the P2, P3 adjustment tool. Refer to section 4.3.4.4.1 for more details on Envelope Flatness

12.3.6. Repeat steps 12.3.2 through 12.3.5 until the above conditions are met.

12.3.7. Release the linear head back to its normal position.

12.3.8. Repeat steps 12.3.2 through 12.3.7 for the PG Low envelope.

12.3.9. Re-calibrate channel 1 of the oscilloscope.

12.3.10. Record the results of this test on the data sheet.



#### 12.4. Envelope Amplitude

12.4.1. Monitor the envelope on the oscilloscope.

12.4.2. Using the Linear head alignment tool, adjust the conical screw below the linear head assembly (see fig. E-5) until the envelope amplitude on the oscilloscope reaches its maximum. Refer to sections 4.3.4.4 and 4.3.4.4.3 for more details on Envelope Amplitude.

12.4.3. Verify that the envelope amplitude for both the PG High and PG Low cycles is greater than the values written onto the alignment tape label. If no values are written on the tape label, verify that the amplitude is greater than 0.9 volts p-p.

12.4.4. Record the amplitude for the PG High and PG Low envelopes on the data sheet.

#### 12.5. PG Delay Offset

12.5.1. Set up the "B Delay" function on the oscilloscope to 5 $\mu$ s per division.

12.5.2. Push the "Trigger View" button on the scope and verify that the PG signal is displayed along with the envelope.

12.5.3. Push the "B delay" button on the scope.

12.5.4. Locate the point where the PG signal transitions from high to low. Verify that a small header exists between the two halves of the envelope. This is the PG delay timing marker.

12.5.5. Adjust R147 until the left side of the timing marker falls on the transition of the PG Delay pulse. Refer to section 4.3.4.4.2 for more details on PG Delay Offset.

12.5.6. Record the results of this test on the data sheet.

#### 12.6. PG Delay Jitter

12.6.1. Set up the "B Delay" function on the oscilloscope to 50 $\mu$ s per division.

12.6.2. Verify that the PG pulse doesn't "jitter" from side to side by more than 50 $\mu$ s.

12.6.3. If the PG delay jitter is greater than 50 $\mu$ s, then replace the drum cable and repeat section 12.5 and steps 12.6.1 and 12.6.2.

12.6.4. Record the results of this test on the data sheet.

12.6.5. Push the "A" button on the scope to return to the normal view of the envelope.

#### 12.7. Final Check

12.7.1. Press **FAST FWD** and after a few seconds, press **PLAY**.

12.7.2. Verify that the full envelope is displayed on the scope within 1 second. Verify that the envelope is flat. Adjust P1, P2 or P3 until this condition is met.

12.7.3. Press **STOP**, then **REWIND** and after a few seconds, press **PLAY**.

12.7.4. Repeat step 12.7.2

12.7.5. Press **STOP** twice to disengage the tape from the heads, then press **REWIND** and after a few seconds, press **PLAY**

12.7.6. Repeat step 12.7.2.

12.7.7. Record the results of this test on the data sheet.

12.7.8. Press **EJECT** and remove the alignment tape.

## 14. VCO Adjustment and Error Rate Minimization

This procedure will detail the adjustments to the VCO circuitry and the method of minimizing the error rate within the ADAT. For information on VCO circuitry, see Section 3.5.10.1 of the ADAT Service Manual.

### 14.1. Oscilloscope Set Up

#### 14.1.1. Channel 1

- Place probe on Test Point 9 (TP9) of the Processor PCB.
- Set to 0.5 Volts/Div.
- Use DC Coupling
- Use the POSITION knob to set the GND trace to the middle of the scope display.

#### 14.1.2. Channel 2

- Place probe on Test Point 8 (TP8) of the Processor PCB.
- Set to 2.0 Volts/Div.
- Use DC Coupling
- Use the POSITION knob to set the GND trace on the first division line from the bottom of the scope display.

#### 14.1.3. Trigger

- Same As Step 8.1.3

#### 14.1.4. Vert. Mode

- Same as step 12.1.4

### 14.2. Uneven Error Rate Check

14.2.1. Insert a formatted tape into the ADAT and press **PLAY**.

14.2.2. Install a jumper between TP4 on the Read Pre-2 PCB and TP20 on the Processor PCB.

14.2.3. Using a small plastic screwdriver, adjust R226 until the number of errors (represented by "blips" on the oscilloscope display) for either the PG high or PG low envelope are roughly 50% of the total amount of errors possible (a constantly high 5 volt signal off of TP8). Refer to Figure E-3A for a pictorial representation of this requirement.

14.2.4. Determine which read head envelope contains the most errors.

14.2.5. Verify that the other read head envelope contains errors which are no less than 1/10th the amount found on the read head envelope selected in step 14.2.4. For example, if 100 errors are noticed on one of the read heads, verify that the other read head contains more than 10 errors. Refer to Figure E-3A for an example of uneven error rate.

14.2.6. If there exists a ratio of errors greater than 10:1 between both halves of the envelope, the unit fails the uneven error rate test. The headstack assembly must be replaced at this time. Refer to section 5.1.12 for details on replacing the rotating headstack.

14.2.7. Press **EJECT** and remove the formatted tape.

### 14.3. Error Rate Minimization

14.3.1. Move the oscilloscope probe from TP8 to TP21. Set channel 2 on the oscilloscope to 1.0 volts/div.

14.3.2. Remove the jumper from TP4 of the Read Pre-2 PCB.

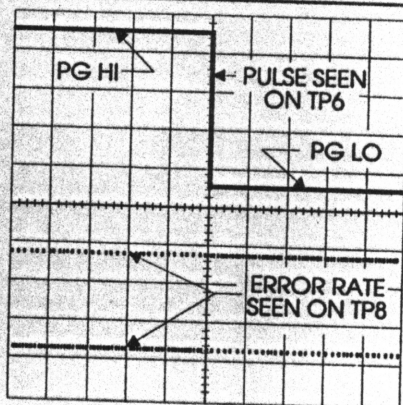
14.3.3. Verify that the signal on TP9 measures 1.5 volts.

14.3.4. If the voltage is not at the specified level, adjust L3 until 1.5 volts is achieved.



## Figure E-3A - Uneven Error Rate Pictorial Representation

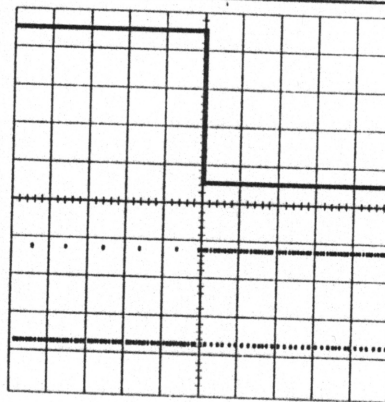
For all displays below, the scope settings are those described in step 14.1



(a)

As described in Step 14.2.3, a typical oscilloscope display will look like the figure above.

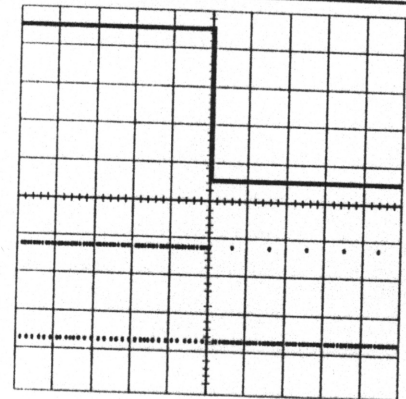
Here the error rate of the two read heads (PG Hi and PG Lo) is relatively even.



(b)

As described in Step 14.2.5, an uneven error rate is displayed above. In this example, the PG Hi head is reading a lot less errors than the PG Lo head. If this scenario matches the display of the ADAT under test, then the unit fails its uneven error rate test and the headstack must be replaced.

Note that an uneven error rate usually indicates a similar condition with envelope amplitude as well. In the example above, monitoring TP1 of the Read Pre-2 PCB will display an amplitude of the PG Hi envelope which is much greater than that of the PG Lo envelope. If this is not the case with the ADAT under test, then the problem may reside in the Read Pre-2 PCB itself.



(c)

As described in Step 14.2.5, an uneven error rate is displayed above. In this example, the PG Lo head is reading a lot less errors than the PG Hi head. If this scenario matches the display of the ADAT under test, then the unit fails its uneven error rate test and the headstack must be replaced.

Note that an uneven error rate usually indicates a similar condition with envelope amplitude as well. In the example above, monitoring TP1 of the Read Pre-2 PCB will display an amplitude of the PG Lo envelope which is much greater than that of the PG Hi envelope. If this is not the case with the ADAT under test, then the problem may reside in the Read Pre-2 PCB itself.

adat REPAIR SHEET

|                |                   |                        |
|----------------|-------------------|------------------------|
| UNIT S/N: AD25 | MFG DATE: [ / / ] | DATE REPAIRED: [ / / ] |
| RA NUMBER:     | DRUM TIME:        | SERVICE TECH:          |
| S/W RECEIVED:  | S/W INSTALLED:    | LABOR HRS:             |

Rev E 11/22/93 JWS

UPDATES (Check for each unit serviced)

DRUM MOTOR: OLD ☐ NEW ☐ IF NEW DRUM MOTOR, PROCESSOR PCB MODS: INSTALLED ☐ REQUIRED ☐  
 PROCESSOR PCB: REV D ☐ REV G ☐ REV J ☐ IF REV D, BRAKE RESISTORS: R32 ☐ R51 ☐  
 READ PRE-2 PCB: REV D: ☐ REV E: ☐ REV G: ☐ IF REV D, FILTER MOD: INSTALLED ☐ REQUIRED ☐

POWER SUPPLY UPDATES: INSTALLED ☐ REQUIRED ☐

CAP MOD: INSTALLED ☐ REQUIRED ☐

WIMA CAPS: INSTALLED ☐ REQUIRED ☐

ELCO CONNECTOR SPACERS: INSTALLED ☐ REQUIRED ☐

LINEAR HEAD MOD: INSTALLED ☐ REQUIRED ☐ N/A ☐

THREAD MOTOR CHECK: OK ☐ REPLACED ☐

SYNC PCB INSULATOR: INSTALLED ☐ REQUIRED ☐

POWER SUPPLY TOROID: INSTALLED ☐ REQUIRED ☐

VCO MOD: INSTALLED ☐ REQUIRED ☐

FRONT PANEL CAP MOD (4700  $\mu$ F): INSTALLED ☐ REQUIRED ☐

REV E ADA PCB: INSTALLED ☐ REQUIRED ☐

NEW CAPSTAN MOTOR: INSTALLED ☐ REQUIRED ☐

MODE SWITCH MODS: INSTALLED ☐ REQUIRED ☐

COMPLAINT COMMENTS

DEFECT COMMENTS

REPAIR COMMENTS

NOTES/COMMENTS/REWORK:

PARTS/COMPONENTS REPLACED

| PART NUMBER | PART DESCRIPTION | QTY |
|-------------|------------------|-----|
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |
|             |                  |     |

QC TEST PROCEDURE (Complete for each unit)

|                          |                                |
|--------------------------|--------------------------------|
| CLEAN TAPE PATH          |                                |
| BATTERY CHECK            | PASS FAIL REWORK               |
| POWER SUPPLY SETUP       | 5V ( ) 12V ( ) 15V ( )         |
| SELF TEST                | PASS FAIL REWORK               |
| PINCH ROLLER/TENSION ARM | OK ADJUSTED                    |
| CASSETTE LOAD TEST       | OK ADJUSTED                    |
| BRAKE TORQUE TEST        | SUPPLY ( ) TAKE UP ( )         |
| MEMORY PROTECT TEST      | PASS FAIL REWORK               |
| END SENSORS TEST         | PASS FAIL REWORK               |
| SERVO CONTROL TEST       | XXXXXXXXXXXXXXXXXXXXXXXXXXXX   |
| DRUM SPEED (2.5 V)       | WAS ADJUSTED                   |
| CAPSTAN SPEED (2.5 V)    | WAS ADJUSTED                   |
| WRCV (3.0 V)             | WAS ADJUSTED                   |
| P1 & P4 ALIGNMENT CHECK  | OK ADJUSTED                    |
| TAPE TENSION (23-27 g)   | PRE-DRUM<br>POST-DRUM          |
| ENVELOPE CALIBRATION     | ALIGN TAPE: PGH PGL            |
| LINEAR HEAD AMP          |                                |
| ENVELOPE FLATNESS        | PASS FAIL REWORK               |
| ENVELOPE AMPLITUDE       | PG HI MAX MIN<br>PG LO MAX MIN |
| PG DELAY OFFSET          | OK ADJUSTED                    |
| PG DELAY JITTER          | OK ADJUSTED                    |
| CROSSTALK TEST - FORMAT  | PG HI PG LO                    |
| CROSSTALK TEST - PLAY    | PG HI PG LO                    |
| ENVELOPE GAP             | OK ADJUSTED                    |
| ERROR RATE MINIMIZATION  | EQ SLICE L3 (VDC)              |
| VCO PHASE TEST           | OK ADJUSTED                    |
| ERROR RATE CHECK         | XXXXXXXXXXXXXXXXXXXXXXXXXXXX   |
| FORMAT PB ERRORS         | PASS FAIL REWORK               |
| PUNCH IN ERRORS          | PASS FAIL REWORK               |
| TRACK SKIPPING TEST      | PASS FAIL REWORK               |
| SAMPLE SKIPPING TEST     | PASS FAIL REWORK               |
| AUDIO TEST               | PASS FAIL REWORK               |